THE 2002 CALIFORNIA ALMANAC OF EMISSIONS AND AIR QUALITY

This almanac was prepared and published by the staff of the

Planning and Technical Support Division
California Air Resources Board

Principal Authors
Andy Alexis, Paul Cox, Anne Lin,
Chris Nguyen, and Marcella Nystrom

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A Note from the Chairman ....

Welcome to the California Air Resources Board's 2002 Almanac of Emissions & Air Quality. This document gives the reader an excellent overview of the levels of air pollutants in different areas of our State, the sources of these pollutants, and the progress being made in reducing them. Air pollution is one of our state's most serious problems.

There are several reasons for this. California's population now numbers around 35 million and grows with each passing day. As the human population grows, so do the number of motor vehicles and the number of miles these vehicles are driven. This growth is important because motor vehicles contribute about 65% of our air pollution.

A second factor contributing to our air pollution problems is California's geography. The most heavily populated areas of our state are valleys or basins hemmed in by mountains. This geography works with a summer climate of hot, stagnant air to trap pollutants in the most heavily populated areas.

Though amazing progress has been made in reducing our state's air pollution (today's passenger car produces about 98% less air pollution than similar vehicles from the early 1970s), it remains a persistent public health problem. The ARB greatly appreciates the support California's citizens have given in the fight against air pollution.

I hope you find this Almanac informative and helpful. The Preface lists e-mail and telephone contacts for your questions or comments. For more information about air pollution, ways to combat it, or the Air Resources Board, visit our web site at *www.arb.ca.gov*.

Alan C. Lloyd

CHAIRMAN,
CALIFORNIA AIR RESOURCES BOARD

Preface

This almanac was prepared and published by the Air Resources Board staff to aid air quality professionals and the public in evaluating air quality in California. The Air Resources Board, as part of the California Environmental Protection Agency, is the State board responsible for achieving and maintaining healthful air quality in California. This responsibility is shared with local air districts and the United States Environmental Protection Agency.

The following staff contributed to the production of this almanac: Vincent Agusiegbe, Jeff Austin, Vijay Bhargava, Edith Chang, Anna Komorniczak, Larry Larsen, Vivian Lerch, Darryl Look, Martin Johnson, Karen Magliano, Michael Redgrave, Jon Taylor, and Dr. Patricia Velasco. The project was managed by Robert Fletcher, Chief of the Planning and Technical Support Division, Dr. Linda Murchison, Assistant Division Chief of the Planning and Technical Support Division, Bob Effa, Chief of the Air Quality Data Branch, Dr. Randy Pasek, Chief of the Emission Inventory Branch, Dr. Michael Benjamin, Manager of the Emission Inventory Systems Section, and Ron Rothacker, Manager of the Air Quality Data Review Section.

This is the third edition of this almanac which is updated annually as additional air quality and emission inventory data become available. If you find errors or have suggestions for improvements, please let us know. For general issues or issues related to air quality data, contact Marcella Nystrom at (916) 323-8543 or mnystrom@arb.ca.gov. For issues related to emissions data, contact Andy Alexis at (916) 323-1085 or aalexis@arb.ca.gov.

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The 2002 California Almanac of Emissions and Air Quality

Chapter 1: *Introduction*

Chapter 2: *Current Emissions and Air Quality -- Criteria Pollutants*

Chapter 3: *Statewide Trends and Forecasts -- Criteria Pollutants*

Chapter 5: *Toxic Air Contaminant Emissions, Air Quality, and Health Risk*

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Chapter 1

Introduction

Organization

This almanac contains information about current and historical emissions and air quality in California. In addition, forecasts of projected emissions for the years 2005 and 2010 are presented. The document provides a reference for anyone interested in air quality as it relates to State and national ambient air quality standards and to toxic air contaminants (TACs). When using this information, please remember that the emission and air quality values represent a snapshot of the data at a particular point in time. This edition of the almanac is a year 2001 snapshot of the emission inventory and air quality databases. Historical and projected emission and air quality data can change over time. For example, emission data may be revised to reflect improved estimation methods, and air quality data may be changed because of corrections or additions.

The Air Resources Board's (ARB) emission and air quality data are available on the World Wide Web, and they can be viewed directly from the ARB's emission inventory and air quality databases. The emission inventory data can be found at *www.arb.ca.gov/emisinv/emsmain/emsmain.htm*. The emission database contains data for more than 10,000 individual facilities, such as power plants and refineries. It also includes approximately 400 area-wide source categories (such as consumer products and architectural coatings), and it provides data for on-road and off-road vehicles, including cars, trucks, trains, ships, aircraft, and farm equipment. In addition, data are available for natural emissions which include wildfires and petroleum seeps.

Emission inventory trends make use of historical emission inventory data and projections based on expectations of future economic and population growth and emission controls. The historical emission inventory data in this almanac were updated to reflect improvements in emission inventory methodologies. The future year projections for stationary sources are developed using the California Emission Forecasting System (CEFS) model. The future year projections are based on the 2001 emission inventory, California economic projections prepared by the air pollution control and air quality management districts and Desert Research Institute/McGraw-Hill, stationary source emission control measures reported to September 2001, the EMFAC 2001 version 2.08 of the mobile source emission model, and the ARB OFFROAD model. State Implementation

Plan (SIP) and conformity inventory forecasts may differ from the forecasts presented in this almanac. For more information on these forecasts, please see the ARB SIP web page at *www.arb.ca.gov/sip/siprev1.htm*.

Historical air quality data can be accessed on the web at *www.arb.ca.gov/aqd/aqd.htm*. The most current air quality data can be accessed directly from the ARBs air quality database using the "Data Summaries-Interactive" option. Using this option, the user may select the desired information, knowing that it reflects what is currently in the database. Because of the time required for sample collection, analysis, and subsequent review of the data for general use, the air quality data on the web lags behind the current date. However, the database is updated periodically, as information becomes available.

In addition to the air quality data on the web, two compact disks (CDs) containing air quality data are available from the Air Resources Board. Each CD contains multiple years of California air quality data (1980-2000 criteria pollutant data and 1990-2000 toxic air contaminant data). The data on the first CD are easily displayed on a map or as a time series graph using the Voyager data visualization software, which is also included on the CD. The second CD contains the same basic data, stored in ASCII files and other forms that can be used by analysts to process their own data. The CDs are available free upon request from the ARBs Planning and Technical Support Division by calling (916) 322-6076.

The emission and air quality information in the remainder of this document are based on data maintained in the ARBs emission and air quality databases. The document is divided into five chapters and four appendices, described below, which include descriptive information, graphics, and tabular data. In addition to this information, Appendix E provides lists of the Figures and Tables included in Chapters 1 through 5

Chapter 1 contains introductory material that describes the information necessary to understand the remaining chapters. It includes information about data interpretation, emission estimating, air quality monitoring, State and national ambient air quality standards, area designations for the State and national standards, and toxic air contaminants. It also includes a discussion of air quality regulation in California, a list of air pollution contacts, and a timeline of important milestones in California's emissions control programs.

Chapters 2 through 4 and Appendices A and B provide information on several of the criteria pollutants. Criteria pollutants are those pollutants for which the State and federal governments have established health-based ambient air quality standards. The pollutants described are ozone, particulate matter (PM_{10} and $PM_{2.5}$), carbon monoxide (CO), nitrogen dioxide, sulfur dioxide, and lead.

Chapter 2 contains information about current criteria pollutant emissions and air quality at the statewide level, including lists of the State's highest emitting facilities. It is organized by pollutant for the three criteria pollutants that still pose major air quality problems: ozone, particulate matter, and carbon monoxide. In addition to data for 2000, the most current year with complete data, preliminary ozone data for the year 2001 are included. Chapter 2 also contains information about how air quality in California compares to other parts of the nation.

Chapters 3 and 4 include information about historical criteria pollutant emission trends and forecasts and air quality trends. Chapter 3 provides statewide information for ozone, PM_{10}, $PM_{2.5}$, CO, lead, nitrogen dioxide (NO_2), and sulfur dioxide (SO_2). Chapter 4 gives similar information for the State's five most populated air basins: the South Coast, San Francisco Bay Area, San Joaquin Valley, San Diego, and Sacramento Valley Air Basins. The chapter focuses on ozone, PM_{10}, and CO. However, Chapter 4 also includes information on NO_2 for the South Coast and San Diego Air Basins since these two areas had NO_2 problems in the past.

Appendix A includes more detailed emission and air quality data for the five criteria pollutants: ozone, PM_{10}, CO, NO_2, and SO_2. The emission trends and forecasts are given at 5-year increments from 1975 through 2010, while the air quality data cover the period 1981 through 2000 (1988 through 2000 for PM_{10}). Data are provided for all of California's 15 air basins and all counties (or county portions) within these air basins. The data are summarized in tabular format and are organized alphabetically, by air basin. In addition to these summary data, Appendix A also includes lists of the highest emitting facilities in each air basin. Appendix B provides air quality information similar to that found in Appendix A, but arranged by pollutant.

Chapter 5 and Appendix C provide information on toxic air contaminants or TACs. In contrast to the criteria pollutants, the control of TACs is based on a risk assessment and risk management approach. The State and federal governments have identified close to 200 TACs. This document includes information on the ten TACs that pose the greatest risk in California, based on ambient monitoring data: acetaldehyde, benzene, 1,3-butadiene, carbon tetrachloride, chromium (hexavalent), formaldehyde, methylene chloride, *para*-dichlorobenzene, perchloroethylene, and estimated concentrations of diesel particulate matter (diesel PM).

Chapter 5 provides historical TAC emission, air quality, and health risk information for the State as a whole, and for each of California's five most populated air basins. The emission data reflect the year 2001. In contrast, the air quality and health risk trends are based on ambient data collected during 1990 through 2000. Appendix C provides more detailed information on the ten TACs, including information on the emissions in each county and the air quality and health risk information for the individual sites where TAC concentrations are routinely measured.

It is important to note that the TAC information presented in this almanac reflects only those compounds for which data are available. There may be other compounds that pose a substantial risk, but have not been identified as a concern, or do not have data available. One example is dioxins, which may pose a substantial risk, but for which ambient air quality data are not available. Furthermore, the air quality and health risk information represents general population exposures. Therefore, the data may not provide information on localized impacts, often referred to as near-source exposures. The ARB is currently participating in several studies to address localized impacts and community health issues. Information from these studies may be included in subsequent editions of this almanac.

Finally, Appendix D provides tabulated information on surface area, population, and vehicle miles traveled (VMT) for the State, for each air basin, and for each county (or county portion) within the air basins. The population and VMT trend data reflect estimates for the years 1981 through 2000.

Although this almanac focuses on air emissions and air quality, the California Environmental Protection Agency (Cal/EPA) has a process underway to develop a set of indicators to measure California's overall environmental health. The indicators will cover all media, not just air, and will help us understand the causes of environmental problems, the status of the environment, and the effectiveness of our environmental strategies. The data in this almanac are good detailed indicators of the State's air quality health, and in conjunction with Cal/EPA's indicators, provide a continuum of information from detailed air quality trends to California's overall environmental health.

Interpreting the Emission and Air Quality Statistics

Interpreting the Criteria Pollutant Statistics. A number of air quality statistics or indicators are used in this document, representing both measured values and statistically derived values. In general, the 1-hour, 8-hour, and 24-hour average concentrations and the number of days above the State and national standards are measured values. In contrast, the peak indicator values, the annual averages, and the calculated number of days above the State and national PM_{10} standards are statistically derived from the measured data.

The peak indicator represents the maximum concentration expected to occur once per year, on average. This indicator is based on a statistical calculation using three years of ambient data collected at each monitoring site in the area. Because it is based on a robust statistical calculation, it is relatively stable, thereby providing a trend indicator that is not highly influenced by year-to-year changes in meteorology.

The annual averages, both arithmetic and geometric, are also calculated values and are based on all the data collected during a single year. In several cases, the annual average may be missing, even though other statistics, such as the maximum concentration, are listed. Because the annual average reflects concentrations measured over an entire year, the data used to calculate this average must be complete and representative for the entire *year*. In contrast, a maximum concentration is valid if the data are complete and representative for the *season* during which the highest concentrations occur.

Finally, the calculated number of days above the State and national PM_{10} standards are also derived values. PM_{10} concentrations are generally measured only once every six days. Using a simple count of days above the standard tends to underestimate the actual number of exceedance days. However, the method for determining "calculated days" accounts for the limited data, giving a more reliable estimate of the actual number of days. In contrast to the other *number of days* summary statistics listed in Chapter 4 and Appendices A and B (for example, the number of days above the State and national 1-hour ozone standards), the calculated number of days above the State and national PM_{10} standards represents the value for the worst-case site rather than a composite basinwide or countywide value.

In general, the criteria pollutant air quality trends in this almanac represent data that have been summarized from a network of monitoring sites to characterize the air quality in a particular region (for example, a county or air basin). Whenever data are summarized, the resulting statistics may be influenced by a number of factors, including the number of monitoring sites in operation and the completeness of the data. To help in interpreting the air quality trends, the ARB has included information on the time periods for which air quality data are available for different pollutants at sites in California and Baja, Mexico in its publication titled: *"California State and Local Air Monitoring Network Plan - 1999"* (February 2000). This report is available on our web site at: *www.arb.ca.gov/aqd/namslams/namslams.htm,* or from the ARBs Planning and Technical Support Division by calling (916) 322-6076.

Interpreting the Criteria Pollutant Emission and Air Quality Trends. A number of criteria pollutant trends are presented in this almanac. Emission and air quality trends for the same pollutant are usually highly correlated. In some cases, however, the two trends may differ, at least in terms of the rate of increase or decrease. The comparison of emission trends to air quality trends is complex, and a number of confounding factors can affect the resulting trends, such as the impacts of transported ozone and PM_{10} from one area to another. An area can show a stable (or flat) emission trend because local emission growth offsets the reductions achieved through technology, but this same area may show an improvement in air quality because ambient concentrations reflect the impact of transport from a region that has improved. Other factors that can affect air quality are meteorology and changes in monitoring sites (both site closures and the establishment of new sites). In addition, the emission data and some air quality statistics are based on estimates. These estimates use the best available methods, however, they embody some degree of uncertainty. All of these factors should be kept in mind when using and interpreting the trends.

The air quality trends in this almanac are for the period 1981 to 2000 for all the criteria pollutants except PM_{10} which is shown from 1988 to 2000. In addition, preliminary air quality data for the year 2001 are included for ozone. The emission estimates are presented at five year intervals from 1975 to 2010, the period for which we have the greatest confidence in the estimates. Generally, air quality trends are based on data which have been consistently measured over the period presented. Because of these factors, care should be taken in the use of these data either absolutely or in trend analyses.

Interpreting the Toxic Air Contaminant Statistics. This almanac includes a number of statistics for ten toxic air contaminants. These statistics are based on data collected by the ARB. (TAC air quality data are also collected by the local air districts and for special studies. However, for consistency, only data collected by the ARB are included here.) In general, TAC concentrations are sampled once every twelve days, for an average of two to three samples per month. Currently, the TAC sampling network comprises 18 sites located throughout California. (This represents a reduction from the previous 21 site network because the ARB has realigned resources to provide support for its community health program.) The ARB originally established the network to measure the presence of TACs in the ambient air. The measured concentrations are generally used to represent average statewide concentrations and health risk. It is important to remember that concentrations can vary from one location to another. As a result, local concentrations and risks may be either higher or lower than the average values.

Chapter 5 and Appendix C contain air quality data for the ten TACs that pose the greatest health risk, based on the available ambient air quality data. The data are summarized for the State as a whole, for each of the five major air basins, and for each individual site within these air basins. As mentioned earlier, historically, the ARB staff used data from the TAC sampling network to characterize statewide average concentrations and health risks. However, this document also presents summary information for air basins and for individual sites. This information should be used with caution because the summary statistics are based on limited data. The ARB is currently involved in efforts to better characterize local or communitywide exposures, and more refined data will be included in future editions of this almanac.

Interpreting the Toxic Air Contaminant Emission and Air Quality Trends. A number of TAC emission and air quality trends are presented in this almanac. Numerous factors influence the ambient measurements, and a number of assumptions are embodied in the summary statistics. Therefore, the resulting trends should be used with caution. The most important factors are summarized below. Chapter 5 and Appendix C include both emission data and ambient concentrations and health risk estimates for the ten TACs that pose the greatest risk statewide.

The toxics emission inventory for 2001 is the most current inventory compiled by the ARB staff. The toxics emissions for stationary sources include emissions data associated with the air toxics "Hot Spots" program. For all source categories associated with diesel fuel combustion, all particulate matter or "PM" emitted from these sources was considered "diesel PM." The area-wide source emission estimates were made by either the local air pollution control districts or the ARB staff. These estimates have been speciated for toxics. Emission estimates for the other mobile source category are primarily from ARB's OFFROAD model, speciated for toxics. For the categories not currently included in the model, the emission estimates have been developed by either local districts or ARB staff. Districts may also provide estimates for categories usually developed by ARB staff. Finally, the on-road mobile source emission estimates are based on the current model, EMFAC 2001, version 2.08. Again, the emission estimates have been speciated for toxics. Readers may note that the diesel PM emission estimates in this almanac differ from those presented in the ARB report, "*Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*" (October 2000). There are several reasons for the difference, and these reasons are detailed in the statewide diesel particulate matter section of Chapter 5.

With respect to the air quality and health risk estimates, there are varying degrees of uncertainty in both the concentrations and the health risk estimates. Bear in mind that the health risk estimates reflect the estimated number of excess cancer cases per million people exposed over a 70-year period only for the ten compounds considered. In addition, the risk estimates are uncertain and actual health risk may be higher or lower than reported here. A number of factors add to the uncertainty, including the assumptions of the underlying risk factors, the assumption of a constant 70-year exposure, measurement biases and uncertainties, and the absence of ambient air quality data for diesel particulate matter, dioxins, and other TACs that may pose a substantial health risk. However, the data are very useful for comparing relative health risks (e.g., comparing the level of health risk for one compound or area relative to another).

The downward concentration trends for the TACs are real, as there have been many control measures implemented to reduce emissions. However, the overall downward trend for some compounds may be different than shown here, for several reasons. First, low concentrations are under-reported for some compounds using the U.S. EPA-approved calibration method. For example, prior to 1996, ambient formaldehyde and acetaldehyde concentrations were under-reported. A method change in 1996 corrected the bias. Because the earlier data as reported in this almanac have not been corrected, the trends appear discontinuous. This may hold true for other gaseous compounds, as well. In contrast, benzene and 1,3-butadiene concentrations during previous years were also likely under-reported, especially at low concentrations. The ARB staff resolved this problem beginning in 1999. Furthermore, the ARB staff developed correction factors for these two TACs, and the pre-1999 data presented in this almanac reflect the correction. Finally, the TAC data lack any meteorological adjustment, and variations in meteorology may affect the trends. For example, the latter years of the trend period tend to have more rain than the earlier drought years (1990-1992), and the presence of rainfall tends to lower the ambient concentrations. This may further affect the downward trends.

While most of the TACs have some missing data during the trend period caused by sampling or analysis problems, several TACs show substantial gaps in their data record. Furthermore, because of the limited sampling schedule, only two or three samples are collected at each site during any particular month. In order to calculate a valid annual average (a mean of the monthly means), data must be available for at least seventy-five percent of the potential sampling days during all twelve months of the year. As a result, only a few missing data points may determine whether a valid annual average can be calculated. If a valid annual average cannot be calculated, data for the year will appear to be missing, even though some data are available.

In addition to missing data, there have been several site changes since the TAC network began operating. In several cases, the site change occurred during the middle of a year. Because the site-by-site statistics presented in this almanac do not combine concentrations measured at different sites, an annual average for the year during which the site change occurred will be missing. Furthermore, sites with incomplete annual data are not included in either the air basin or statewide annual average for that year. This may lead to some variation in the year-to-year statistics. In particular, the average health risk estimates may include a varying number of compounds and therefore, may not be directly comparable from one year to the next. Site changes in each of the five major air basins are described in Chapter 5. A summary of the data record for all the monitoring sites and toxic air contaminants is available on the ARBs web site at: *www.arb.ca.gov/aqd/toxics/toxics.html*. In addition, information about specific gaps in the TAC data is available from the ARB Monitoring and Laboratory Division at (916) 445-3742.

Finally, it is important to note that the concentrations and health risk estimates presented in this almanac are based on ambient outdoor measurements. They do not account for any indoor exposure to TACs. However, the indoor exposures can contribute significantly to individual health risk.

California Facts and Figures

California is truly a "Land of Contrasts." The State offers a variety of physical features, including mountains, valleys, oceans, and deserts. In terms of size, California ranks third in the United States, after Alaska and Texas. California covers a total area of close to 160,000 square miles and is larger than many nations in the world today, including Great Britain, Japan, Italy, and Norway. Of California's total area, about 152,000 square miles are land, and almost 8,000 square miles are water. The Pacific Ocean forms the western boundary of California, with a coastline more than 1,200 miles long. This is nearly equal to the combined Atlantic coastlines of Maine, New Hampshire, Massachusetts, Connecticut, Rhode Island, New York, and New Jersey.

California is blessed with a wide range of scenery and climates. The southern coastal areas enjoy a Mediterranean climate with the oak-studded hills and sunny beaches for which the State is famous. The northern coast is covered by fog-shrouded redwood forests. Inland lies the vast Central Valley with its millions of acres of cropland. The Sierra Nevada in the eastern half of California runs nearly two-thirds the length of the State. The Sierra includes the highest mountain in the continental United States, Mount Whitney, as well as the southernmost glacier in North America. Most of the southeastern portion of the State is desert, with sun-baked Death Valley, the lowest point in North America, lying only 60 miles from Mount Whitney. Further south are the scenic mountain ranges of the Mojave Desert.

To a large degree, California's pleasant climate and abundance of relatively level land are the major features that have drawn people to the State. Since 1975, California's population has increased about 56 percent, from about 22.1 million to nearly 34.5 million in the year 2000. The increase in the average number of vehicle miles traveled (VMT) each day on our roadways has been even more dramatic. VMT has increased more than 120 percent, from about 359 million miles per day in 1975 to 797 million miles per day in 2000. With these dramatic increases in population and VMT have come tremendous challenges in controlling emissions to improve air quality.

Sources of Emissions in California

California is a diverse state with many sources of air pollution. To estimate the sources and quantities of pollution, the Air Resources Board, in cooperation with local air pollution control districts and industry, maintains an inventory of California emission sources. Sources are subdivided into four major emission categories: stationary sources, area-wide sources, mobile sources, and natural sources. The tables in Chapter 2 provide some examples of the types of emission sources included in each of these categories.

Stationary source emissions are based on estimates made by facility operators and local air pollution control districts. Emissions from specific facilities can be identified by name and location. Area-wide emissions are estimated by ARB and district staffs. Emissions from area-wide sources may be either from small individual sources, such as residential fireplaces, or from widely distributed sources that cannot be tied to a single location, such as consumer products and dust from unpaved roads. Mobile source emissions are estimated by ARB staff with assistance from districts and other government agencies. Mobile sources include on-road cars, trucks, and buses and other sources such as boats, off-road recreational vehicles, aircraft, and trains. Natural sources are also estimated by the ARB staff and the air districts. These sources include geogenic hydrocarbons, natural wind-blown dust, and wildfires. Biogenic hydrocarbon emission estimates are not included in this document.

For the inventoried emission sources, the ARB compiles emission estimates for both the criteria pollutants and toxic air contaminants. Chapters 2 through 4 and Appendices A and B focus on five criteria pollutants: ozone, particulate matter, carbon monoxide, nitrogen dioxide, and sulfur dioxide. Emissions related to these criteria pollutants include total organic gases (TOG), reactive organic gases (ROG), oxides of nitrogen (NO_x), carbon monoxide (CO), oxides of sulfur (SO_x), particulate matter (PM), and particulate matter with an aerodynamic diameter of 10 microns or smaller (PM_{10}). While some pollutants, such as CO, are directly emitted, others are formed in the atmosphere from *precursor emissions*. Such is the case with ozone, which is formed in the atmosphere when hydrocarbon and NO_x precursor emissions react in the presence of sunlight. *Hydrocarbon* is a general term used to describe compounds comprised of hydrogen and carbon atoms. Hydrocarbons are classified as to how photochemically reactive they are: relatively reactive or relatively non-reactive. Non-reactive hydrocarbons consist mostly of methane, which in turn consists of a single carbon atom and four hydrogen atoms. Emissions of *Total Organic Gases* and *Reactive Organic Gases* are two classes of hydrocarbons measured for California's emissions inventory. TOG includes all hydrocarbons, both reactive and non-reactive. In contrast, ROG includes only the reactive hydrocarbons. For emissions inventory purposes, TOG is measured because non-reactive hydrocarbons, although relatively non-reactive, nonetheless have enough reactivity to play an important role in photochemistry that needs to be quantified for modeling purposes.

In addition to the information about the criteria pollutants, Chapter 5 and Appendix C focus on the ten toxic air contaminants that pose the greatest potential health risk, primarily based on statewide ambient air quality data. These ten TACs are: acetaldehyde, benzene, 1,3-butadiene, carbon tetrachloride, chromium (hexavalent), *para*-dichlorobenzene, formaldehyde, methylene chloride, perchloroethylene, and diesel particulate matter. Excluding diesel particulate matter, the remaining nine TACs represent over 95 percent of the potential health risk as measured through the statewide TAC air monitoring network. Although diesel particulate matter is not currently monitored, emissions and modeled ambient concentrations indicate that diesel particulate matter has a higher health risk than the other nine compounds combined.

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Air Quality Monitoring

Meteorology acts on the emissions released into the atmosphere to produce pollutant concentrations. These airborne pollutant concentrations are measured throughout California at air quality monitoring sites. The Air Resources Board operates a statewide network of monitors. Data from this network are supplemented with data collected by local air districts, other public agencies, and private contractors. As shown in Figure 1-1, there are more than 250 criteria pollutant monitoring sites in California. Currently, the ARB also monitors ambient concentrations of toxic air contaminants at 18 of these sites. In addition to the California sites, a few monitoring sites are located in Baja California, Mexico. These sites were established in cooperation with the United States Environmental Protection Agency (U.S. EPA) and the Mexican government to monitor the cross-border transport of pollutants and pollutant precursors. Each year, more than ten million air quality measurements from all of these sites are collected and stored in a comprehensive air quality database maintained by the ARB. To ensure the integrity of the data, the ARB routinely conducts audits and reviews of the monitoring instruments and the resulting data.

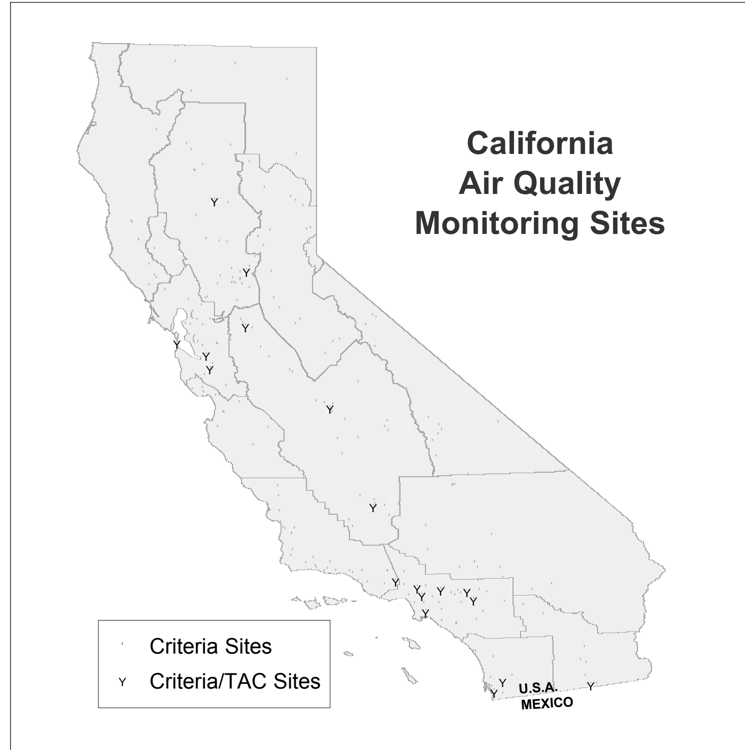

Figure 1-1

California Air Basins

California contains a wide variety of climates, physical features, and emission sources. This variety makes the task of improving air quality complex, because what works in one area may not be effective in another area. To better manage common air quality problems, California is divided into 15 air basins, as shown in Figure 1-2 and Table 1-1. The Air Resources Board established the initial air basin boundaries during 1968.

An air basin generally has similar meteorological and geographical conditions throughout. To the extent possible, the air basin boundaries follow along political boundary lines and are defined to include both the source area and the receptor area. However, air often moves freely from basin to basin. As a result, pollutants such as ozone and PM_{10} can be transported across air basin boundaries, and interbasin transport is a reality that must be dealt with in air quality programs. Although established in 1968, the air basin boundaries have been changed several times over the years, to provide for better air quality management.

Figure 1-2

List of Counties in Each Air Basin

Great Basin Valleys Air Basin
- Alpine County
- Inyo County
- Mono County

Lake County Air Basin
- Lake County

Lake Tahoe Air Basin
- El Dorado County (portion)
- Placer County (portion)

Mojave Desert Air Basin
- Kern County (portion)
- Los Angeles County (portion)
- Riverside County (portion)
- San Bernardino County (portion)

Mountain Counties Air Basin
- Amador County
- Calaveras County
- El Dorado County (portion)
- Mariposa County
- Nevada County
- Placer County (portion)
- Plumas County
- Sierra County
- Tuolumne County

Table 1-1

List of Counties in Each Air Basin

North Central Coast Air Basin

- Monterey County
- San Benito County
- Santa Cruz County

North Coast Air Basin

- Del Norte County
- Humboldt County
- Mendocino County
- Sonoma County (portion)
- Trinity County

Northeast Plateau Air Basin

- Lassen County
- Modoc County
- Siskiyou County

Sacramento Valley Air Basin

- Butte County
- Colusa County
- Glenn County
- Placer County (portion)
- Sacramento County
- Shasta County
- Solano County (portion)
- Sutter County
- Tehama County
- Yolo County
- Yuba County

Table 1-1 (continued)

List of Counties in Each Air Basin

Salton Sea Air Basin
- Imperial County
- Riverside County (portion)

San Diego Air Basin
- San Diego County

San Francisco Bay Area Air Basin
- Alameda County
- Contra Costa County
- Marin County
- Napa County
- San Francisco County
- San Mateo County
- Santa Clara County
- Solano County (portion)
- Sonoma County (portion)

San Joaquin Valley Air Basin
- Fresno County
- Kern County (portion)
- Kings County
- Madera County
- Merced County
- San Joaquin County
- Stanislaus County
- Tulare County

South Central Coast Air Basin
- San Luis Obispo County
- Santa Barbara County
- Ventura County

Table 1-1 (continued)

List of Counties in Each Air Basin

South Coast Air Basin

- Los Angeles County (portion)
- Orange County
- Riverside County (portion)
- San Bernardino County (portion)

Table 1-1 (continued)

Criteria Air Pollutants

California and National Ambient Air Quality Standards

Very simply, an ambient air quality standard is the definition of "clean air." More specifically, a standard establishes the concentration above which the pollutant is known to cause adverse health effects to sensitive groups within the population, such as children and the elderly. Both the California and federal governments have adopted health-based standards for the *criteria pollutants*, which include but are not limited to ozone, particulate matter (PM_{10} and $PM_{2.5}$), and carbon monoxide. For some pollutants, the California (State) and national standards are very similar. For other pollutants, the State standards are more stringent. The differences in the standards are generally explained by the different health effects studies considered during the standard-setting process and the interpretation of the studies. In addition, the State standards incorporate a margin of safety to protect sensitive individuals (a complete list of the State and national ambient air quality standards can be found on the ARB website at *www.arb.ca.gov/aqs/aqs.htm*). In general, the air quality standards are expressed as a measure of the amount of pollutant per unit of air. For example, the particulate matter standards are expressed as micrograms of particulate matter per cubic meter of air ($\mu g/m^3$).

Ozone

Ozone, a colorless gas which is odorless at ambient levels, is the chief component of urban smog. Ozone is not directly emitted as a pollutant, but is formed in the atmosphere when hydrocarbon and NO_x precursor emissions react in the presence of sunlight. Meteorology and terrain play major roles in ozone formation. Generally, low wind speeds or stagnant air coupled with warm temperatures and cloudless skies provide the optimum conditions for ozone formation. As a result, summer is generally the peak ozone season. Because of the reaction time involved, peak ozone concentrations often occur far downwind of the precursor emissions. Therefore, ozone is a regional pollutant that often impacts a large area.

Ozone impacts lung function by irritating and damaging the respiratory system. In addition, ozone causes damage to vegetation, buildings, rubber, and some plastics. Recognizing the health impacts of day-long exposure, the U.S. EPA promulgated an 8-hour standard for ozone in 1997 as a successor to the 1-hour standard. Despite ongoing legal issues related to a challenge of the standard, implementation of the standard is moving forward. However, as the transition to the 8-hour standard continues, the 1-hour standard still applies in areas that violate it, until they attain the 1-hour standard.

State Ozone Standard:
0.09 ppm for 1 hour,
not to be exceeded.

National Ozone Standards:
0.12 ppm for 1 hour,
not to be exceeded more than once per year *and*
0.08 ppm for 8 hours,
not to be exceeded,
based on the fourth highest concentration averaged over three years.

Table 1-2

Particulate Matter (PM_{10} and $PM_{2.5}$)

PM_{10} refers to particles with an aerodynamic diameter of 10 microns or smaller. For comparison, the diameter of a human hair is about 50 to 100 microns. PM_{10} is a mixture of substances that includes elements such as carbon, lead, and nickel; compounds such as nitrates, organic compounds, and sulfates; and complex mixtures such as diesel exhaust and soil. These substances may occur as solid particles or liquid droplets. Some particles are emitted directly into the atmosphere. Others, referred to as secondary particles, result from gases that are transformed into particles through physical and chemical processes in the atmosphere. PM_{10} includes a subgroup of finer particles called $PM_{2.5}$. These fine particles have an aerodynamic diameter of 2.5 microns or smaller. They pose an increased health risk because they can deposit deep in the lung and contain substances that are particularly harmful to human health. The U.S. EPA promulgated national $PM_{2.5}$ standards in 1997. Because of ongoing legal issues related to the challenge of the standard, implementation is just beginning.

There are national standards for both PM_{10} and $PM_{2.5}$, and there are State standards for PM_{10}. The ARB will review the State particulate matter standards in 2002. Additional information on the State PM standards is available on the web at: *http://www.arb.ca.gov/research/aaqs/std-rs/pm-draft/pm-draft.htm.*

State PM_{10} Standards:
- 50 µg/m³ for 24 hours *and*
- 30 µg/m³ annual geometric mean, neither to be exceeded.

National PM_{10} Standards:
- 150 µg/m³ for 24 hours, not to be exceeded, more than once per year *and*
- 50 µg/m³ annual arithmetic mean averaged over 3 years.

National $PM_{2.5}$ Standards:
- 65 µg/m³ for 24 hours, not to be exceeded, based on the 98th percentile concentration averaged over three years *and*
- 15 µg/m³ annual arithmetic mean averaged over 3 years.

Table 1-3

Carbon Monoxide

Carbon monoxide is a colorless and odorless gas that is directly emitted as a by-product of combustion. The highest concentrations are generally associated with cold stagnant weather conditions that occur during winter. In contrast to ozone, which tends to be a regional pollutant, CO problems tend to be localized.

Carbon monoxide is harmful because it is readily absorbed through the lungs into the blood, where it binds with hemoglobin and reduces the ability of the blood to carry oxygen. As a result, insufficient oxygen reaches the heart, brain, and other tissues. The harm caused by CO can be critical for people with heart disease (angina), chronic lung disease, or anemia, as well as for unborn children. Even healthy people exposed to high levels of CO can experience headaches, fatigue, slow reflexes, and dizziness. Health damage caused by CO is of greater concern at high elevations where the air is less dense, aggravating the consequences of reduced oxygen supply. As a result, California has a more stringent CO standard for the Lake Tahoe Air Basin.

State CO Standards:
20 ppm for 1 hour *and*
9.0 ppm for 8 hours,
neither to be exceeded.

6 ppm for 8 hours
(Lake Tahoe Air Basin only),
not to be equaled or exceeded.

National CO Standards:
35 ppm for 1 hour *and*
9 ppm for 8 hours,
neither to be exceeded more
than once per year.

Table 1-4

California and National Area Designations

Both the California and federal governments use monitoring data to designate areas according to their attainment status for most of the pollutants with ambient air quality standards. The purpose of the designations is to identify those areas with air quality problems and thereby initiate planning efforts to make the air more healthful. There are three basic designation categories: nonattainment, attainment, and unclassified. In addition, the California (State) designations include a subcategory of the nonattainment designation, called nonattainment-transitional. The nonattainment-transitional designation is given to nonattainment areas that are making progress and nearing attainment.

A *nonattainment designation* indicates that the air quality violates an ambient air quality standard. Although a number of areas may be designated as nonattainment for a particular pollutant, the severity of the problem can vary greatly. For example, in two ozone nonattainment areas, the first area has a measured maximum concentration of 0.13 parts per million (ppm), while the second area has a measured maximum concentration of 0.23 ppm. It is obvious that the second area has a more severe ozone problem, and will need a more stringent emission control strategy. To identify the severity of the problem and the extent of planning required, nonattainment areas are assigned a classification that is commensurate with the severity of their air quality problem (e.g., moderate, serious, severe).

In contrast to nonattainment, an *attainment designation* indicates that the air quality does not violate the established standard. In most cases, areas designated as attainment must develop and implement maintenance plans designed to assure continued compliance with the standard. Finally, an *unclassified designation* indicates that there are insufficient data for determining attainment or nonattainment. More detailed information on the area designation categories can be found on the ARB website at *www.arb.ca.gov/desig/desig.htm*.

Ozone - State Area Designations

Some rural and coastal areas of California are designated as attainment for the State ozone standard. However, most of the rest of the State, including all of the major urban areas, have ozone concentrations that violate the State standard, and therefore, are designated as nonattainment. Although few areas have made sufficient progress to be redesignated as attainment for the State ozone standard, ozone precursor emissions continue to decline throughout California. As a result, air quality is improving and more areas should eventually qualify for attainment status.

Figure 1-3

Ozone - National 1-Hour Area Designations

Similar to the State designations, most of the major urban areas in California are designated as nonattainment for the national 1-hour ozone standard. The remaining areas are designated as unclassified/attainment. Ambient ozone concentrations in these areas do not violate the national 1-hour standard. However, a number of these areas violate the new 8-hour national ozone standard.

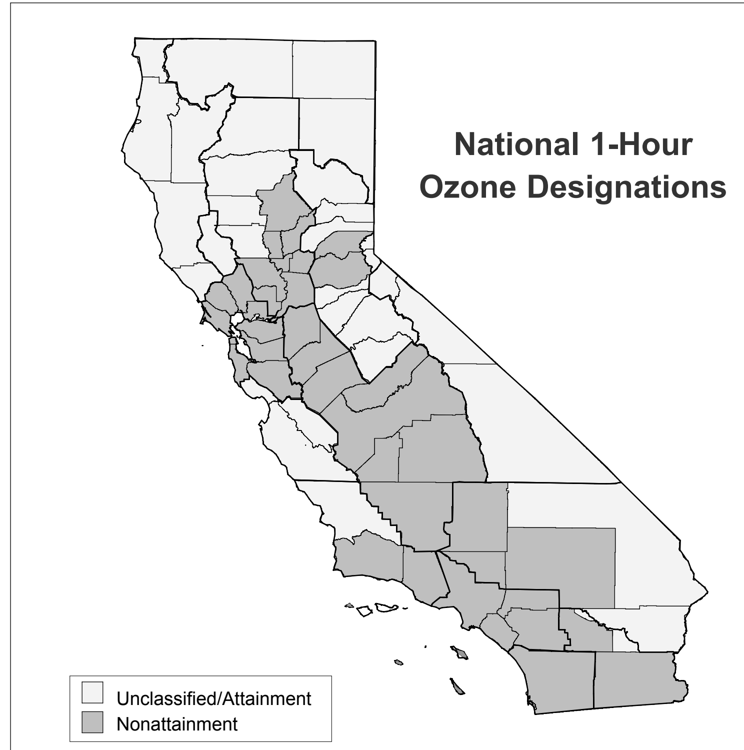

Figure 1-4

Ozone - National 8-Hour Area Designations

In 2000, the ARB forwarded to the U.S. EPA a recommendation that fifteen areas be designated as nonattainment for the national 8-hour ozone standard. Eleven of these areas (South Coast Air Basin, San Joaquin Valley, Sacramento Region, San Francisco Bay Area, Ventura County, San Diego County, Eastern Kern County, Antelope Valley, Western Mojave Desert, Coachella Valley, and Imperial County) are already nonattainment for the national 1-hour standard. The four new nonattainment areas are Shasta County, Tehama County, Western Nevada County, and the southern Mountain Counties (Amador, Calaveras, Tuolumne, and Mariposa counties). Further details of the ARB recommendation can be found in the ARB report entitled *"Recommended Area Designations for the Federal Eight-Hour Ozone Standard,"* (February 2000) and on the ARB website at: *www.arb.ca.gov/desig/8-houroz/8-houroz.htm*. Because of on-going legal issues related to the challenge of the 8-hour ozone standard, U.S. EPA has not yet acted on the ARB's recommendations. The ARB staff expect to update the recommended nonattainment designations to reflect the most recent air quality data and current implementation guidance before U.S. EPA finalizes the nonattainment designations.

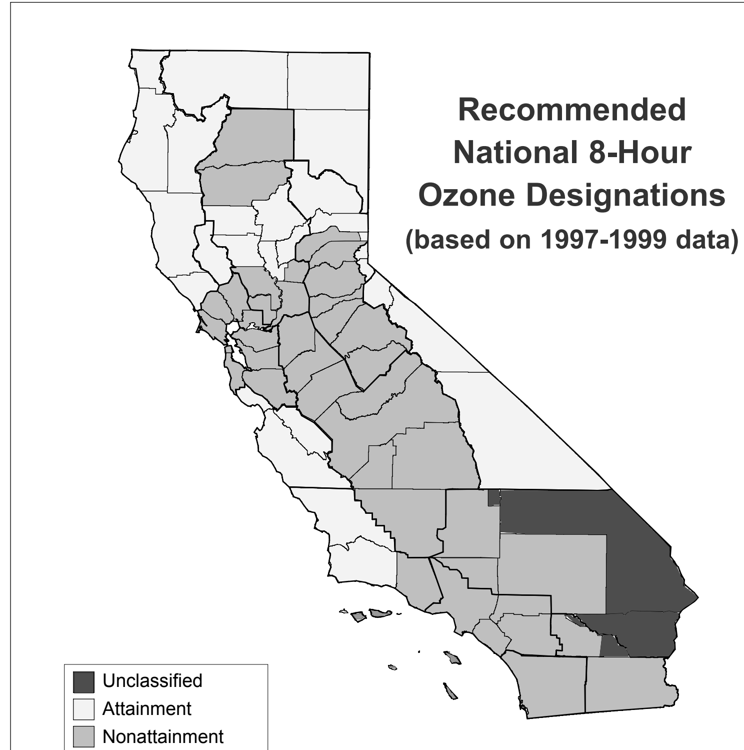

Figure 1-5

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PM_{10} - State Area Designations

The majority of California is designated as nonattainment for the State PM_{10} standards. Three counties in the northern half of the State remain unclassified, and only one area, Lake County Air Basin, is designated as attainment.

PM_{10} remains a widespread problem, and its causes are very diverse. Because of the variety of sources and the size and chemical make-up of the particles, the PM_{10} problem can vary considerably from one area to the next. In addition, high PM_{10} concentrations are seasonal, and the high season varies from area to area. For example, in some areas, windblown dust may contribute to high PM_{10} concentrations in the summer and fall, while in other areas, high concentrations due to secondary particles may occur during the winter. As a result, two areas with similar PM_{10} concentrations may have very different PM_{10} problems, and multiple control strategies are needed to effectively deal with these problems.

Figure 1-6

PM_{10} - National Area Designations

In contrast to the State PM_{10} designations, there are only two designation categories for the national PM_{10} standards: nonattainment and unclassified. Areas designated as nonattainment for the national PM_{10} standards are required to develop and implement plans designed to meet the standards. Although the U.S. EPA has not provided for an attainment designation, several areas in the State have PM_{10} air quality that does not violate the national standards.

Recognizing the health impacts of fine particles (those equal to or less than 2.5 microns in diameter), the U.S. EPA promulgated national $PM_{2.5}$ standards in 1997, and the ARB began deploying monitors to collect ambient $PM_{2.5}$ data during 1998. When the U.S. EPA promulgated the $PM_{2.5}$ standards, it agreed not to designate nonattainment areas and/or begin the planning process until after completing its next health review of the particulate matter standards. This review is scheduled for 2002. The first official national $PM_{2.5}$ area designations will likely take place in 2004 and will be based on three full years of monitoring data. Until then, the actions taken to reduce ozone and PM_{10} should also help in reducing $PM_{2.5}$.

Figure 1-7

Carbon Monoxide - State Area Designations

Currently, there are only two nonattainment areas for the State CO standards: Los Angeles County and the city of Calexico, in Imperial County. California has made tremendous progress in reducing CO concentrations in the last ten years, during which 13 areas with over 12.5 million people have been redesignated as attainment. Much of the progress in reducing ambient CO is attributable to motor vehicle controls and the introduction of cleaner fuels.

With respect to the nonattainment areas, the outlook for further reducing CO concentrations in Los Angeles County is good, and continued emission reductions should assure attainment sometime in the future. In contrast, the problem in Calexico is unique in that this area is probably impacted by emissions from Mexico. Additional studies are needed to determine the most effective control strategy for the Calexico area.

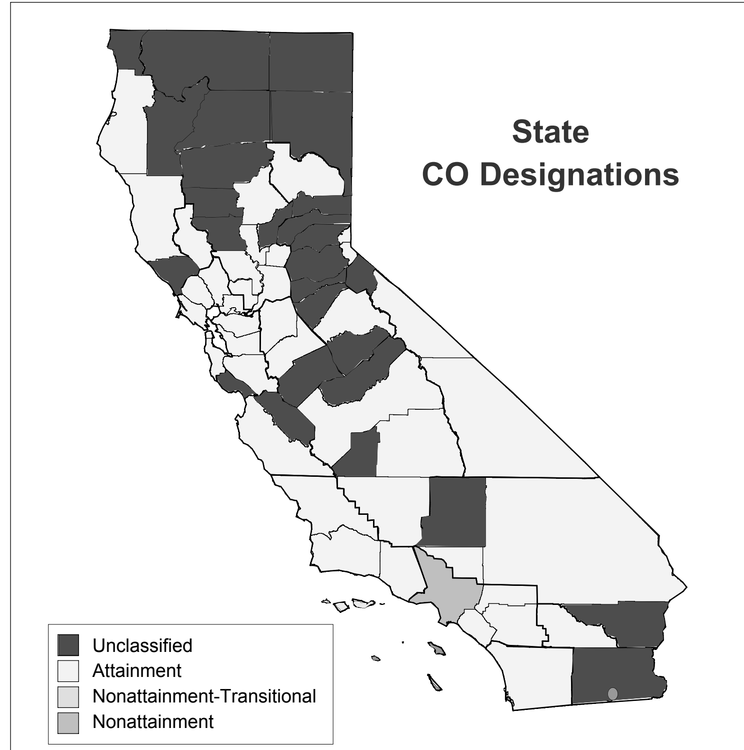

Figure 1-8

Carbon Monoxide - National Area Designations

The U.S. EPA uses only two designation categories for CO: unclassified/attainment and nonattainment. All areas of California except the South Coast Air Basin are currently designated as unclassified/attainment for the national CO standards. Furthermore, the CO problem in the South Coast area is limited to only a small portion of Los Angeles County. Most CO is directly emitted by cars and trucks, and the Air Resources Board's motor vehicle controls should be sufficient to overcome the problem in the coming years. In addition to Los Angeles County, the city of Calexico, in Imperial County, also has carbon monoxide concentrations that violate the national standards. However, the U.S. EPA has not acted to change this area's designation from unclassified/attainment to nonattainment.

Figure 1-9

Toxic Air Contaminants

A toxic air contaminant or TAC is defined as an air pollutant which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health. TACs are usually present in minute quantities in the ambient air. However, their high toxicity or health risk poses a threat to public health even at these very low concentrations. In general, there is no concentration at which a TAC is considered safe. In other words, there is no threshold below which adverse health impacts do not occur. This contrasts with the criteria pollutants for which acceptable levels of exposure can be determined and for which the State and federal governments have set ambient air quality standards.

The Air Resources Board's TAC program traces its beginning to the criteria pollutants program in the 1960s. For many years, the criteria pollutant control program has been effective at reducing TACs because many volatile organic compounds and particulate matter constituents are also TACs. During the 1980s, the public's concern over toxic chemicals heightened. As a result, citizens demanded protection and control over the release of toxic chemicals into the air. In response to public concerns, the California legislature enacted a 1983 law governing the release of TACs. This law charges the Air Resources Board with responsibility for identifying substances as TACs, setting priorities for control, adopting control strategies, and promoting alternative processes. To date, the ARB has designated nearly 200 compounds as TACs. Additionally, the ARB has implemented control strategies for a number of compounds that pose high risk and show potential for effective control.

The majority of the estimated health risk from TACs can be attributed to a relatively few compounds, the most important being particulate matter from diesel-fueled engines (diesel particulate matter). Diesel particulate matter differs from other TACs in that it is not a single substance but rather, a complex mixture of hundreds of substances. Although diesel particulate matter is emitted by diesel-fueled internal combustion engines, the composition of the emissions will vary depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emission control system is present. Unlike the other toxic air contaminants, no ambient monitoring data are available for diesel particulate matter because no routine measurement method currently exists. However, the ARB made preliminary estimations of concentrations for the State and its fifteen air basins using a particulate matter-based exposure method. The method uses the ARB emission inventory's PM_{10} database, ambient PM_{10} monitoring data, and the results from several studies with chemical speciation of ambient data. These data were used, along with receptor modeling techniques, to estimate outdoor concentrations of diesel particulate matter. Details on the method and the resulting estimates for individual air basins can be found in the ARB report entitled: *"Proposed Identification of Diesel Exhaust as a Toxic Air Contaminant -- Appendix III Part A Exposure Assessment,"* (April 1998). Since that report was published, the ARB has updated the estimated statewide concentrations for diesel PM. These updated statewide concentrations are used in this almanac and are described in Appendix VI of the ARB report entitled: *"Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles,"* (October 2000) In addition to diesel particulate matter, benzene and 1,3-butadiene are also significant contributors to overall public health risk in California.

This almanac (Chapter 5 and Appendix C) includes information for ten TACs: acetaldehyde, benzene, 1,3-butadiene, carbon tetrachloride, chromium (hexavalent), *para*-dichlorobenzene, formaldehyde, methylene chloride, perchloroethylene, and diesel particulate matter. These ten compounds pose the greatest risk, statewide, based primarily on air quality data. (Note that other TACs, for example dioxins, may also pose a significant health risk. However, sufficient air quality data are not yet available.

The majority of the TAC information in this almanac is presented on a pollutant-by-pollutant basis, with a focus on cancer risk. The data represent general, average population exposures and may not represent the health risk near local sources. Localized impacts may involve exposure to different toxic air contaminants or to higher concentrations than those represented by the ambient monitoring data. One future challenge is to better characterize community health risks by focusing on localized or near-source impacts. Future editions of this almanac may include this type of information, as it becomes available. In addition to the focus on general, average population exposure, this almanac includes only cancer risk. Future editions may include data for non-cancer risks, which may be more significant on a local basis than on a general, average basis.

The ARB has substantially increased its knowledge about TACs in the last fifteen years, and control efforts have been effective in reducing public exposures and associated health risks. The future gradual phase-in of control strategies will likely continue to result in lower exposures for California's citizens. In the interim, work continues on identifying toxic substances and developing a better understanding of the risks they pose. Health experts still have only a limited knowledge of the mechanisms by which many toxic substances harm the body, and there is still much work to be done in researching health effects and quantifying cancer risks. Cooperative strategies between the ARB, businesses, and other State, local, and federal agencies will be a major focus of future control efforts. Furthermore, we must look at community health issues and cumulative exposures to learn which communities are the most impacted and who in those communities are the most vulnerable. The ARB is currently participating in several studies to address localized impacts and community health issues. More information on these studies is available on the web at: *www.arb.ca.gov/ch/ch.htm*.

Additional information on TACs may be found on the ARB website at *www.arb.ca.gov/toxics/toxics.htm*. Detailed information on the health effects of these pollutants, as well as many other toxic air contaminants, can be found in a report entitled: "*Toxic Air Contaminant Identification List-Summaries.*" This report, dated September 1997, is available from the ARB Public Information Office and on the web at *www.arb.ca.gov/toxics/tac/intro.htm.*

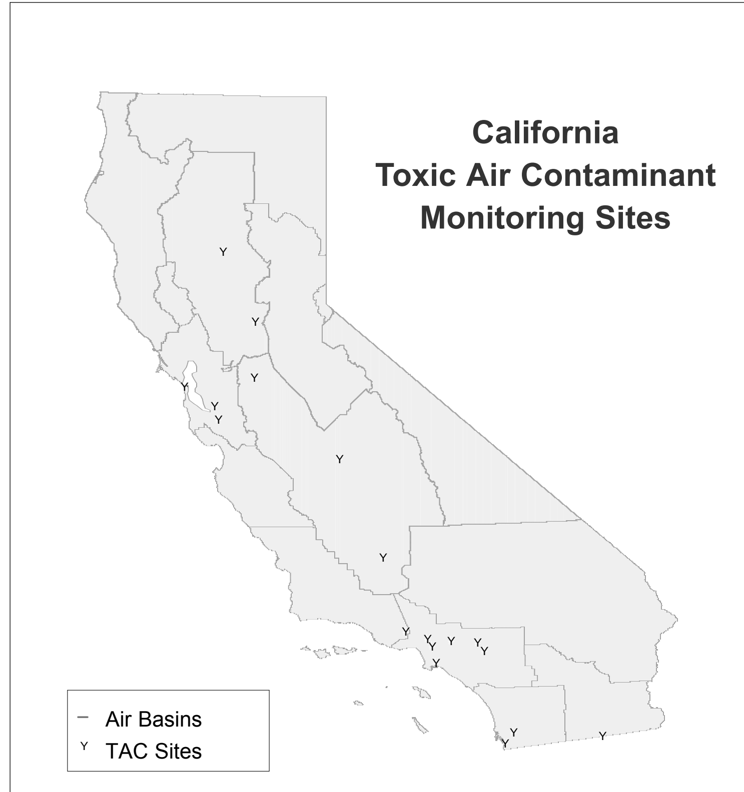

Figure 1-10

California Air Quality Regulation

The responsibility for controlling air pollution in California is shared between 35 local air pollution control and air quality management districts (districts), the Air Resources Board, and the United States Environmental Protection Agency. The basic responsibilities of each of these entities are outlined below.

District Responsibilities:

- Control and permit industrial pollution sources (such as power plants, refineries, and manufacturing operations) and widespread area-wide sources (such as bakeries, dry cleaners, service stations, and commercial paint applicators).
- Adopt local air quality plans and rules.

Air Resources Board Responsibilities:

- Establish State ambient air quality standards.
- Adopt and enforce emission standards for mobile sources (except where federal law preempts ARB's authority), fuels, consumer products, and toxic air contaminants.
- Provide technical support to the local districts.
- Oversee local district compliance with State and federal law.
- Approve local air quality plans and submit State Implementation Plans to U.S. EPA.

United States Environmental Protection Agency Responsibilities:

- Establish national ambient air quality standards.
- Set emission standards for mobile sources, including those sources under exclusive federal jurisdiction (like interstate trucks, aircraft, marine vessels, locomotives, and farm/construction equipment).
- Oversee State air programs as they relate to the Federal Clean Air Act.
- Approve State Implementation Plans.

List of Air Pollution Contacts

Amador County Air Pollution Control District
All of Amador County
(209) 257-0112
www.air-amador.org

Antelope Valley Air Pollution Control District
Northeast portion of Los Angeles County
(661) 723-8070
www.avapcd.ca.gov

Bay Area Air Quality Management District
All of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara counties, western portion of Solano County, and southern portion of Sonoma County
(415) 771-6000
www.baaqmd.gov

Butte County Air Quality Management District
All of Butte County
(530) 891-2882
www.bcaqmd.org

Calaveras County Air Pollution Control District
All of Calaveras County
(209) 754-6504
lgrewal@co.calaveras.ca.us

Colusa County Air Pollution Control District
All of Colusa County
(530) 458-0590
ccair@colusanet.com/apcd

El Dorado County Air Pollution Control District
All of El Dorado County
(530) 621-6662
www.co.el-dorado.ca.us/emd/apcd

Feather River Air Quality Management District
All of Sutter and Yuba counties
(530) 634-7659
www.fraqmd.org

Glenn County Air Pollution Control District
All of Glenn County
(530) 934-6500
airpollution@countyofglenn.net

Great Basin Unified Air Pollution Control District
All of Alpine, Inyo, and Mono counties
(760) 872-8211
greatbasin@qnet.com

Imperial County Air Pollution Control District
All of Imperial County
(760) 482-4606
stephenbirdsall@imperialcounty.net

Kern County Air Pollution Control District
Eastern portion of Kern County
(661) 862-5250
www.kernair.org

Lake County Air Quality Management District
All of Lake County
(707) 263-7000
bobr@pacific.net

Lassen County Air Pollution Control District
All of Lassen County
(530) 251-8110
lassenag@psln.com

Mariposa County Air Pollution Control District
All of Mariposa County
(209) 966-2220
air@yosemite.net

Mendocino County Air Quality Management District
All of Mendocino County
(707) 463-4354
www.co.mendocino.ca.us/aqmd

Modoc County Air Pollution Control District
All of Modoc County
(530) 233-6419
modocag@hdo.net

Mojave Desert Air Quality Management District
Northern portion of San Bernardino County and eastern portion of Riverside County
(760) 245-1661
www.mdaqmd.ca.gov

Monterey Bay Unified Air Pollution Control District
All of Monterey, San Benito and Santa Cruz counties
(831) 647-9411
www.mbuapcd.org

North Coast Unified Air Quality Management District
All of Del Norte, Humboldt, and Trinity counties
(707) 443-3093
www.northcoast.com/~ncuaqmd

Northern Sierra Air Quality Management District
All of Nevada, Plumas, and Sierra counties
(530) 274-9360
www.nccn.net/~nsaqmd

No. Sonoma County Air Pollution Control District
Northern portion of Sonoma County
(707) 433-5911
nsc@sonic.net

Placer County Air Pollution Control District
All of Placer County
(530) 889-7130
www.placer.ca.gov/airpollution/airpolut.htm

Sacramento Metro Air Quality Management District
All of Sacramento County
(916) 874-4800
www.airquality.org

San Diego County Air Pollution Control District
All of San Diego County
(858) 650-4700
www.sdapcd.co.san-diego.ca.us

San Joaquin Valley Unified Air Pollution Control District
All of Fresno, Kings, Madera, Merced, San Joaquin, Stanislaus, and Tulare counties and western portion of Kern County
(559) 230-6000
www.valleyair.org

San Luis Obispo County Air Pollution Control District
All of San Luis Obispo County
(805) 781-4AIR
www.sloapcd.dst.ca.us

Santa Barbara County Air Pollution Control District
All of Santa Barbara County
(805) 961-8800
www.sbcapcd.org

Shasta County Air Quality Management District
All of Shasta County
(530) 225-5674
www.co.shasta.ca.us/Departments/Resourcemgmt/drm/aqmain.htm

Siskiyou County Air Pollution Control District
All of Siskiyou County
(530) 841-4029
wstephan@co.siskiyou.ca.us

South Coast Air Quality Management District
Los Angeles County except for portion covered by Antelope Valley APCD, all of Orange County, western portion of San Bernardino County, and western portion of Riverside County
(909) 396-2000
www.aqmd.gov

Tehama County Air Pollution Control District
All of Tehama County
(530) 527-3717
gbovee@tehcoapcd.net

Tuolumne County Air Pollution Control District
All of Tuolumne County
(209) 533-5693
bsandman@co.tuolumne.ca.us

Ventura County Air Pollution Control District
All of Ventura County
(805) 645-1400
www.vcapcd.org

Yolo-Solano Air Quality Management District
All of Yolo County and eastern portion of Solano County
(530) 757-3650
www.ysaqmd.org

Milestones in California's Emission Control Programs

Historical Milestones:

1963: First vehicle emission control in the country – positive crankcase ventilation required to reduce evaporative emissions.

1966: First tailpipe emission standards for hydrocarbons (HC) and carbon monoxide (CO).

1971: First oxides of nitrogen (NO_x) standards for cars and light trucks.

1973: First heavy-duty diesel truck standards.

1975: Two-way catalytic converters first used to control HC and CO emissions from cars.

1976: "Unleaded" gasoline first offered for sale, with reduced lead levels.

Three-way catalyst first used to control NO_x, HC, and CO emissions from cars.

1984: California Smog Check program implemented to identify and repair ineffective emission control systems on cars and light-trucks.

1988: California Clean Air Act is enacted, setting forth the framework for meeting State ambient air quality standards.

1992: California's reformulated gasoline introduced – reducing evaporative emissions, phasing out lead in gasoline, and requiring wintertime oxygenates to reduce CO formation.

First consumer product regulations take effect, regulating HC emissions from aerosol antiperspirants and deodorants.

1993: Cleaner diesel fuel launched, reducing emissions of diesel particulate matter, sulfur dioxide, and NO_x.

Regulations to limit HC emissions from consumer products such as hairspray, windshield washer fluid, and air fresheners take effect.

1994: Low emission vehicle regulations to further reduce emissions from cars and light trucks take effect.

1996: Cleaner burning gasoline debuts with emission benefits equivalent to removing 3.5 million cars from California roads.

Regulations reducing HC emissions from spray paint take effect.

1998: Tighter standards for California diesel trucks and buses take effect.

Revamped Smog Check II program implemented.

1999: ARB acted to phaseout MTBE in gasoline.

2000: First standards for large spark ignition off-road engines such as forklifts and pumps take effect nationwide.

More stringent California standards for the small engines used in lawn and garden equipment take effect.

Diesel Control Plan adopted to reduce risk from diesel engines.

2001: Tighter emission standards for off-road diesel equipment, such as tractors and generators, take effect nationwide.

More stringent standards for pleasure boats and personal watercraft sold in California begin.

Limits on HC emissions from products such as carpet and upholstery cleaners take effect.

Upcoming Milestones:

2002: Emission standards for new heavy-duty diesel trucks are cut in half, nationwide.

2003: Zero emission requirements for new cars take effect.

MTBE in California gasoline is fully phased out.

2004: Regulations to further reduce emissions from cars (and require light-trucks and sport-utility vehicles to meet the same emission standards as cars) take effect in California.

Tighter standards for on-road motorcycles begin.

2005: Limits on HC emissions from paint removers take effect.

2006: Ultra-low sulfur diesel fuel introduced.

2007: Emission standards for heavy-duty diesel trucks are cut by 90 percent nationwide.

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Chapter 2

Current Emissions and Air Quality -- Criteria Pollutants

Introduction

This chapter provides statewide information on current emissions and air quality, relative to the State and national ambient air quality standards (see Chapter 5 for information on toxic air contaminants). This section gives a national perspective on how California's air quality compares with that in other areas of the nation. The second section of this chapter includes a summary table of the Statewide Emission Inventory. The table shows emissions data by four major source categories: stationary sources, area-wide sources, mobile sources, and natural sources. The third section provides more detailed information for the four major source categories in a table of the Statewide Emission Inventory by Sub-Category. The remaining sections of this Chapter provide information on emissions (including the high emitting facilities) and air quality on a statewide basis. This information is organized by pollutant, for ozone (and ozone precursor emissions), particulate matter (PM_{10} and $PM_{2.5}$), and CO.

Emissions are reported as annual averages, in tons per day. For most sources and pollutants that are not seasonal, this describes emissions very well. However, for some pollutants such as PM_{10}, annual averages do not give an accurate indication of the seasonal nature of emissions. Therefore, they may appear to be artificially low. Many sources of PM_{10} are seasonal, including wildfires, seasonal operations such as agricultural processes, or dust storms in the Owens Valley and Mono Lake areas. Many sources of PM_{10} can also be very localized, and basinwide annual averages do not give any information about these sources.

State and local agencies have implemented many control measures during the last three decades to improve air quality. As a result, there has been a steady decline in both emissions and pollutant concentrations. However, three criteria pollutants -- ozone, particulate matter, and carbon monoxide -- still pose air quality problems. While existing control programs have reduced CO concentrations to levels below the standards, except in parts of Los Angeles County and Calexico, it will be a significant challenge to reduce emissions sufficiently to attain the ozone and PM standards statewide.

Figure 2-1 shows the national 1-hour ozone design values for the top 15 urban areas in the nation, based on data for 1998 to 2000. The design values in all these areas exceed the national 1-hour standard of 0.12 ppm. Six of the fifteen areas are located in California, with the Riverside-San Bernardino area on top. The Houston-Galveston-Brazoria area ranks second. The ranking of areas on the list can change, depending on the ozone statistic being used. For example, Houston-Galveston-Brazoria experienced the highest measured 1-hour ozone concentrations in the United States during 1999 and 2000. Therefore, the Texas area would rank first in the nation for this statistic. Overall, as ozone concentrations in California decline, our air quality continues to improve relative to other areas of the nation.

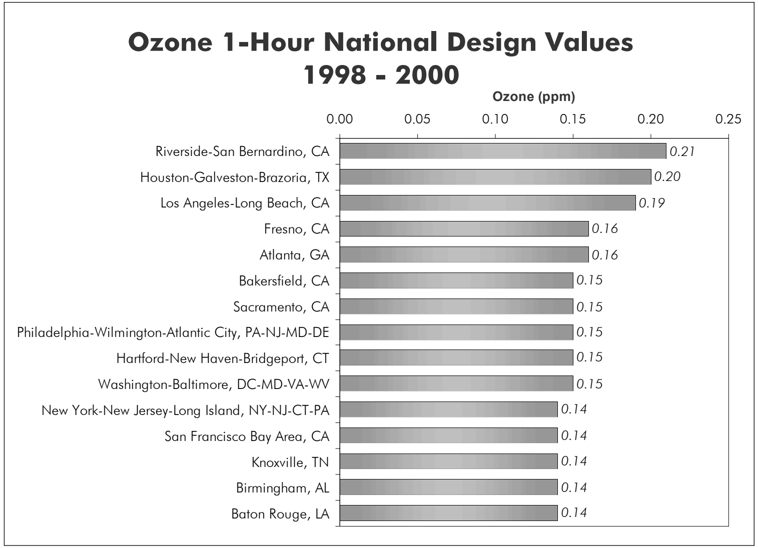

Figure 2-1

Attainment of the standards for particulate matter that is 10 microns and smaller (PM_{10}) is also a significant problem. The PM_{10} problem is most prevalent in the western United States. Eight western areas are classified as serious PM_{10} nonattainment areas. Half of these -- the Coachella Valley, the Owens Valley, the San Joaquin Valley, and the South Coast Air Basin -- are located in California. Because of the complex nature of the particulate matter problem, it will be many years before the standards are attained.

Carbon monoxide poses much less of a problem. Figure 2-2 shows the six areas in the nation that experienced CO concentrations above the level of the national standard during 1998 through 2000. The sites are ranked, based on the average number of exceedance days. The Calexico and Los Angeles areas rank first and second. While these two areas are the only ones in the State where the CO standards are still violated, the State's stringent motor vehicle emission standards and clean fuels programs continue to be effective in reducing ambient CO concentrations. Furthermore, as a result of these controls, CO concentrations in nine other California areas no longer violate the national standards, and these areas were redesignated as attainment for the national standards in 1998.

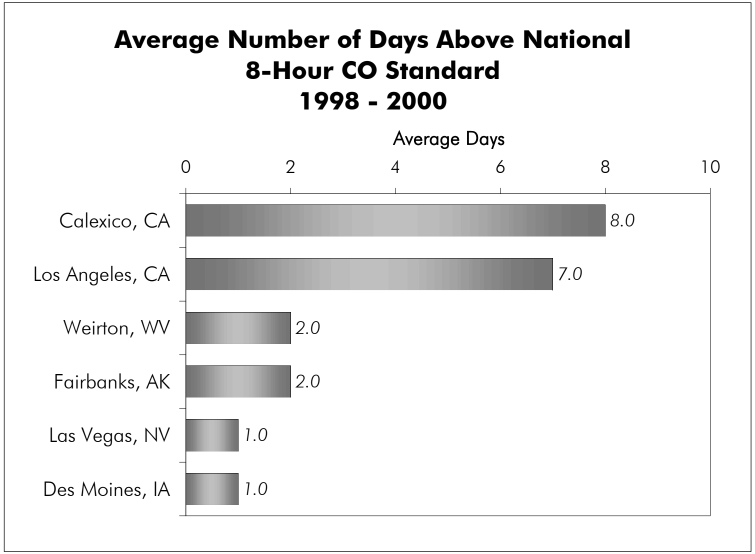

Figure 2-2

2001 Statewide Emission Inventory Summary

Division / Major Category	Emissions (tons/day, annual average)					
	TOG	ROG	CO	NOx	SOx	PM_{10}
Stationary Sources	2568	588	362	587	137	139
Fuel Combustion	203	43	304	478	53	42
Waste Disposal	1422	22	3	3	0	1
Cleaning And Surface Coatings	401	285	0	0	0	0
Petroleum Production And Marketing	458	168	9	14	55	3
Industrial Processes	85	69	45	92	28	94
Area-Wide Sources	2032	749	2309	96	5	2076
Solvent Evaporation	561	504	0	0	0	0
Miscellaneous Processes	1471	244	2309	96	5	2076
Mobile Sources	1816	1672	14394	2741	161	123
On-Road Motor Vehicles	1296	1197	11636	1767	12	53
Other Mobile Sources	519	474	2759	974	149	70
Natural Sources*	106	38	409	18	0	80
Total California	***6522***	***3046***	***17474***	***3441***	***302***	***2418***

*Does not include biogenic sources. These summaries do not include emissions from wind blown dust - exposed lake beds from Owens and Mono Lakes. These emissions are estimated to be about 800 tons/day.

Table 2-1

2001 Statewide Emission Inventory by Sub-Category

Division Major Category Sub-Category	Emissions (tons/day, annual average)					
	TOG	ROG	CO	NOx	SOx	PM_{10}
Stationary Sources (division total)	**2568**	**588**	**362**	**587**	**137**	**139**
Fuel Combustion (major category total)	203	43	304	478	53	42
- Electric Utilities	34	4	57	51	3	6
- Cogeneration	18	4	41	33	2	4
- Oil And Gas Production (Combustion)	39	8	23	35	9	3
- Petroleum Refining (Combustion)	3	2	10	47	9	4
- Manufacturing And Industrial	61	10	79	164	18	9
- Food And Agricultural Processing	6	4	53	43	4	4
- Service And Commercial	36	9	30	99	9	5
- Other (Fuel Combustion)	5	1	11	5	0	7
Waste Disposal (major category total)	1422	22	3	3	0	1
- Sewage Treatment	1	1	1	0	0	0
- Landfills	1391	18	1	1	0	0
- Incinerators	1	0	1	2	0	0
- Soil Remediation	0	0	0	0	0	0
- Other (Waste Disposal)	29	4	0	0	0	0
Cleaning And Surface Coatings (major category total)	401	285	0	0	0	0
- Laundering	23	1	0	0	0	0
- Degreasing	164	86	-	-	-	-
- Coatings And Related Process Solvents (sub-category total)	155	145	0	0	0	0
- Auto, Marine, & Aircraft	*25*	*24*	*0*	*0*	*0*	*0*
- Paper & Fabric	*4*	*3*	*0*	*0*	*0*	*0*
- Metal, Wood, & Plastic	*49*	*47*	*0*	*0*	*0*	*0*
- Other	*77*	*70*	*0*	*0*	*0*	*0*

Table 2-2

2001 Statewide Emission Inventory by Sub-Category

Division Major Category Sub-Category	TOG	ROG	CO	NOx	SOx	PM_{10}
	Emissions (tons/day, annual average)					
Stationary Sources (division total) (continued)						
Cleaning And Surface Coatings (major category) (continued)						
- Printing	18	18	0	0	0	0
- Adhesives And Sealants	33	29	0	0	-	0
- Other (Cleaning And Surface Coatings)	8	6	0	0	0	0
Petroleum Production And Marketing (major category total)	458	168	9	14	55	3
- Oil And Gas Production	123	58	1	3	1	0
- Petroleum Refining	36	28	6	10	55	2
- Petroleum Marketing (sub-category total)	294	78	2	1	0	0
- Fuel Distribution Losses	*218*	*4*	*0*	*0*	*0*	*0*
- Fuel Storage Losses	*4*	*3*	*0*	*0*	*0*	*0*
- Vehicle Refueling	*61*	*61*	*0*	*0*	*0*	*0*
- Other	*12*	*11*	*1*	*0*	*0*	*0*
- Other (Petroleum Production And Marketing)	5	4	-	-	-	-
Industrial Processes (major category total)	85	69	45	92	28	94
- Chemical	37	29	1	3	8	5
- Food And Agriculture	21	20	3	9	1	16
- Mineral Processes	8	6	32	56	11	47
- Metal Processes	2	1	2	1	0	1
- Wood And Paper	4	3	1	3	1	16
- Glass And Related Products	0	0	1	17	6	1
- Electronics	0	0	0	0	0	0
- Other (Industrial Processes)	13	9	6	2	0	7

Table 2-2 (continued)

2001 Statewide Emission Inventory by Sub-Category

Division / Major Category / Sub-Category	Emissions (tons/day, annual average) TOG	ROG	CO	NOx	SOx	PM_{10}
Area-Wide Sources (division total)	**2032**	**749**	**2309**	**96**	**5**	**2076**
Solvent Evaporation (major category total)	561	504	0	0	0	0
- Consumer Products	324	270	-	-	-	-
- Architectural Coatings And Related Process Solvent (sub-category total)	122	119	-	-	-	-
- Architectural Coating	*104*	*102*	-	-	-	-
- Thinning & Cleanup Solvents	*18*	*17*	-	-	-	-
- Pesticides/Fertilizers (sub-category total)	83	83	-	-	-	-
- Farm Use	*80*	*80*	-	-	-	-
- Commercial Use	*3*	*3*	-	-	-	-
- Asphalt Paving / Roofing	33	32	-	-	-	0
Miscellaneous Processes (major category total)	1471	244	2309	96	5	2076
- Residential Fuel Combustion (sub-category total)	152	66	1009	81	5	143
- Wood Combustion	*145*	*64*	*985*	*12*	*2*	*139*
- Cooking And Space Heating	*6*	*2*	*21*	*59*	*3*	*4*
- Other	*1*	*1*	*4*	*10*	*0*	*1*
- Farming Operations (sub-category total)	1170	94	-	-	-	204
- Tilling,Harvesting, & Growing	*0*	*0*	-	-	-	*177*
- Livestock	*1170*	*94*	-	-	-	*27*

Table 2-2 (continued)

2001 Statewide Emission Inventory by Sub-Category

Division Major Category Sub-Category	TOG	ROG	CO	NOx	SOx	PM10
	Emissions (tons/day, annual average)					
Area-Wide Sources (division total) (continued)						
Miscellaneous Processes (major category) (continued)						
- Construction And Demolition (sub-category total)	-	-	-	-	-	225
- Building	*-*	*-*	*-*	*-*	*-*	*131*
- Road Construction Dust	*-*	*-*	*-*	*-*	*-*	*95*
- Paved Road Dust	-	-	-	-	-	399
- Unpaved Road Dust	-	-	-	-	-	651
- Fugitive Windblown Dust (sub-category total)	-	-	-	-	-	299
- Farm Lands	*-*	*-*	*-*	*-*	*-*	*169*
- Pasture Lands	*-*	*-*	*-*	*-*	*-*	*14*
- Unpaved Roads	*-*	*-*	*-*	*-*	*-*	*116*
- Fires	1	1	10	0	-	1
- Waste Burning And Disposal (sub-category total)	139	77	1289	14	0	128
- Agricultural Burning	*38*	*22*	*251*	*5*	*0*	*30*
- Non-Agricultural Burning	*100*	*55*	*1038*	*9*	*0*	*99*
- Other	*0*	*0*	*0*	*0*	*0*	*0*
- Cooking	9	6	-	-	-	25
- Other (Miscellaneous Processes)	0	0	1	0	-	1

Table 2-2 (continued)

2001 Statewide Emission Inventory by Sub-Category

Division Major Category Sub-Category	Emissions (tons/day, annual average) TOG	ROG	CO	NOx	SOx	PM10
Mobile Sources (division total)	**1816**	**1672**	**14394**	**2741**	**161**	**123**
On-Road Motor Vehicles (major category total)	1296	1197	11636	1767	12	53
- Light Duty Passenger (sub-category total)	682	632	5733	528	3	18
- Non-Evaporative	*409*	*359*	*5731*	*524*	*3*	*17*
- Evaporative	*272*	*272*	*0*	*0*	*0*	*0*
- Diesel	*1*	*1*	*2*	*4*	*0*	*1*
- Light Duty Trucks(<3750 lbs.) (sub-category total)	152	141	1593	139	1	3
- Non-Evaporative	*94*	*83*	*1592*	*138*	*1*	*3*
- Evaporative	*58*	*58*	*0*	*0*	*0*	*0*
- Diesel	*0*	*0*	*0*	*1*	*0*	*0*
- Light Duty Trucks (>3750 lbs) (sub-category total)	144	132	1519	217	1	10
- Non-Evaporative	*95*	*83*	*1518*	*216*	*1*	*10*
- Evaporative	*49*	*49*	*0*	*0*	*0*	*0*
- Diesel	*0*	*0*	*1*	*1*	*0*	*0*
- Medium Duty Trucks (sub-category total)	119	109	1320	139	1	4
- Non-Evaporative	*85*	*75*	*1317*	*132*	*1*	*4*
- Evaporative	*33*	*33*	*0*	*0*	*0*	*0*
- Diesel	*1*	*1*	*3*	*7*	*0*	*0*
- Light Heavy Duty Gas Trucks (<10000 lbs) (sub-category total)	78	72	509	33	0	0
- Non-Evaporative	*48*	*42*	*509*	*33*	*0*	*0*
- Evaporative	*30*	*30*	*0*	*0*	*0*	*0*
- Light Heavy Duty Gas Trucks (>10000 lbs) (sub-category total)	7	6	56	7	0	0
- Non-Evaporative	*4*	*4*	*56*	*7*	*0*	*0*
- Evaporative	*2*	*2*	*0*	*0*	*0*	*0*
- Medium Heavy Duty Gas Trucks (sub-category total)	42	40	335	27	0	0
- Non-Evaporative	*30*	*27*	*335*	*27*	*0*	*0*
- Evaporative	*12*	*12*	*0*	*0*	*0*	*0*

Table 2-2 (continued)

2001 Statewide Emission Inventory by Sub-Category

Division Major Category Sub-Category	Emissions (tons/day, annual average) TOG	ROG	CO	NOx	SOx	PM_{10}
Mobile Sources (division total) (continued)						
On-Road Motor Vehicles (major category) (continued)						
- Heavy Heavy Duty Gas Trucks (sub-category total)	16	14	234	13	0	0
- Non-Evaporative	*13*	*11*	*234*	*13*	*0*	*0*
- Evaporative	*3*	*3*	*0*	*0*	*0*	*0*
- Light Heavy Duty Gas Trucks (<10000 lbs)	1	1	2	10	0	0
- Light Heavy Duty Gas Trucks (>10000 lbs)	1	1	3	13	0	0
- Medium Heavy Duty Diesel Trucks	4	4	25	143	1	4
- Heavy Heavy Duty Diesel Trucks	23	20	90	448	4	12
- Motorcycles (sub-category total)	20	19	126	3	0	0
- Non-Evaporative	*12*	*11*	*126*	*3*	*0*	*0*
- Evaporative	*8*	*8*	*0*	*0*	*0*	*0*
- Heavy Duty Diesel Urban Buses	2	1	6	31	0	1
- Heavy Duty Gas Urban Buses (sub-category total)	2	2	23	3	0	0
- Non-Evaporative	*2*	*2*	*23*	*3*	*0*	*0*
- Evaporative	*0*	*0*	*0*	*0*	*0*	*0*
- School Buses (sub-category total)	1	1	12	5	0	0
- Non-Evaporative	*1*	*1*	*11*	*1*	*0*	*0*
- Evaporative	*0*	*0*	*0*	*0*	*0*	*0*
- Diesel	*0*	*0*	*1*	*4*	*0*	*0*
- Motor Homes (sub-category total)	2	2	51	8	0	0
- Non-Evaporative	*2*	*2*	*51*	*6*	*0*	*0*
- Evaporative	*0*	*0*	*0*	*0*	*0*	*0*
- Diesel	*0*	*0*	*0*	*2*	*0*	*0*

Table 2-2 (continued)

2001 Statewide Emission Inventory by Sub-Category

Division Major Category Sub-Category	TOG	ROG	CO	NOx	SOx	PM_{10}
	Emissions (tons/day, annual average)					
Mobile Sources (division total) (continued)						
Other Mobile Sources (major category total)	519	474	2759	974	149	70
- Aircraft	49	44	262	55	3	9
- Trains	7	6	23	140	7	3
- Ships And Commercial Boats	9	8	20	107	62	9
- Recreational Boats	137	126	677	23	1	7
- Off-Road Recreational Vehicles (sub-category total)	59	54	265	4	0	0
- Snowmobiles	*44*	*41*	*130*	*2*	*0*	*0*
- Motorcycles	*6*	*6*	*53*	*0*	*0*	*0*
- All-Terrain Vehicles	*5*	*5*	*48*	*0*	*0*	*0*
- Four-Wheel Drive Vehicles	*3*	*3*	*34*	*1*	*0*	*0*
- Off-Road Equipment (sub-category total)	145	125	1375	498	57	32
- Lawn And Garden Equipment	*48*	*44*	*429*	*6*	*0*	*1*
- Commercial & Industrial Equipment	*97*	*81*	*946*	*492*	*57*	*31*
- Farm Equipment	23	20	136	146	19	10
- Fuel Storage and Handling	90	90	-	-	-	-
Natural (Non-Anthropogenic) Sources (division total)	**106**	**38**	**409**	**18**	**-**	**80**
Natural Sources* (major category total)	106	38	409	18	-	80
- Geogenic Sources	79	23	-	-	-	-
- Wildfires	27	15	409	18	-	80
Total Statewide - All Sources	***6522***	***3046***	***17474***	***3441***	***302***	***2418***

*Does not include biogenic sources. These summaries do not include emissions from wind blown dust - exposed lake beds from Owens and Mono Lakes. These emissions are estimated to be about 800 tons/day.

Table 2-2 (continued)

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Ozone

2001 Statewide Emission Inventory - Ozone Precursors by Category

NO_x Sources - Statewide

NO_x is a group of gaseous compounds of nitrogen and oxygen, many of which contribute to the formation of ozone, PM_{10}, and $PM_{2.5}$. Most NO_x emissions are produced by the combustion of fuels. Industrial sources report NO_x emissions to local air districts and to the Air Resources Board. Other sources of NO_x emissions are estimated by the local air districts and the ARB. Mobile sources (including on-road and other) make up about 80 percent of the total statewide NO_x emissions. The category of other mobile sources includes emissions from aircraft, trains, ships, recreational boats, industrial and construction equipment, farm equipment, off-road recreational vehicles, and other equipment. Stationary sources of NO_x include both internal and external combustion processes in industries such as manufacturing, food processing, electric utilities, and petroleum refining. Area-wide sources, which include residential fuel combustion, waste burning, and fires, contribute only a small portion of the total NO_x emissions.

NO_x Emissions (annual average)		
Emissions Source	**tons/day**	**Percent**
Stationary Sources	587	17%
Area-wide Sources	96	3%
On-Road Mobile	1767	52%
Gasoline Vehicles	1126	33%
Diesel Vehicles	641	19%
Other Mobile	974	28%
Total Statewide	*3423*	*100%*

Table 2-3

ROG Sources - Statewide

Reactive organic gases (ROG) are volatile organic compounds that are photochemically reactive and contribute to the formation of ozone, as well as PM_{10} and $PM_{2.5}$. These emissions result primarily from incomplete fuel combustion and the evaporation of chemical solvents and fuels. On-road mobile sources are the largest contributors to statewide ROG emissions. This category includes emissions from cars, trucks, and motorcycles powered by gasoline and diesel fuels. Stationary sources of ROG emissions include processes that use solvents (such as dry cleaning, degreasing, and coating operations) and petroleum-related processes (such as petroleum refining and marketing and oil and gas extraction). Area-wide ROG sources include consumer products, pesticides, aerosol and architectural coatings, asphalt paving and roofing, and other evaporative emissions.

ROG Emissions (annual average)		
Emissions Source	**tons/day**	**Percent**
Stationary Sources	588	19%
Area-wide Sources	749	25%
On-Road Mobile	1197	40%
Gasoline Vehicles	1170	39%
Diesel Vehicles	28	1%
Other Mobile	474	16%
Total Statewide	*3008*	*100%*

Table 2-4

Largest Stationary Sources Statewide

Largest Stationary Sources of NO_x Statewide

Air Basin	Facility Name	City	NO_x (Tons/Year)
Mojave Desert	Riverside Cement Co.	Oro Grande	4838
Mojave Desert	Cemex-California Cement	Apple Valley	4483
San Francisco Bay Area	Martinez Refining Company	Martinez	3166
San Francisco Bay Area	Valero Refining	Benicia	2927
Mojave Desert	Cal Portland Cement Co.	Mojave	2874
San Francisco Bay Area	Ultramar, Inc. Avon Refinery	Martinez	2659
San Francisco Bay Area	Chevron Products Company	Richmond	2627
North Central Coast	Duke Energy Moss Landing	Moss Landing	2222
Mojave Desert	IMC Chemicals, Inc.	Trona	2101
Mojave Desert	Mitsubishi Cement	Lucerne Valley	1794

Facility totals are the most recent available data. Some facilities may have reduced or increased emissions since these data were collected. These changes will be reflected in subsequent almanacs.
The list of facilities does not include military bases, landfills, or airports.

Table 2-5

Largest Stationary Sources of ROG Statewide

Air Basin	Facility Name	City	ROG (Tons/Year)
San Francisco Bay Area	Chevron Products Company	Richmond	2365
San Francisco Bay Area	Martinez Refining Company	Martinez	1702
San Francisco Bay Area	Ultramar, Inc. Avon Refinery	Martinez	1563
San Joaquin Valley	Occidental Petroleum	Elk Hills	1137
South Coast	Chevron Products Co.	El Segundo	695
South Coast	Mobil Oil Corp	Torrance	641
San Francisco Bay Area	Tosco Rodeo Refinery	Rodeo	613
San Francisco Bay Area	New United Motor Manufacturing	Fremont	474
South Coast	Arco Products Co.	Carson	452
South Coast	Equilon Enterprises LLC (Refinery)	Wilmington	446

Facility totals are the most recent available data. Some facilities may have reduced or increased emissions since these data were collected. These changes will be reflected in subsequent almanacs.
The list of facilities does not include military bases, landfills, or airports.

Table 2-6

Ozone - 2000 Air Quality

Air quality as it relates to ozone has improved greatly in California over the last several decades, and 1999 was no exception. However, despite aggressive emission controls, maximum measured ozone concentrations are still above the level of the State standard in 11 of the 15 air basins. Maximum measured values exceed the national 1-hour standard in nine air basins. California's highest ozone concentrations occur in the South Coast Air Basin, where the peak 1-hour indicator is more than two times the level of the State standard.

Ozone concentrations are generally lower near the coast than they are inland, and rural areas tend to be cleaner than urban areas. This can be explained in part by the characteristics of ozone, including pollutant reactivity, transport, and deposition. Based on current ozone concentrations, substantial additional emission control measures will be needed to attain the standards throughout the State.

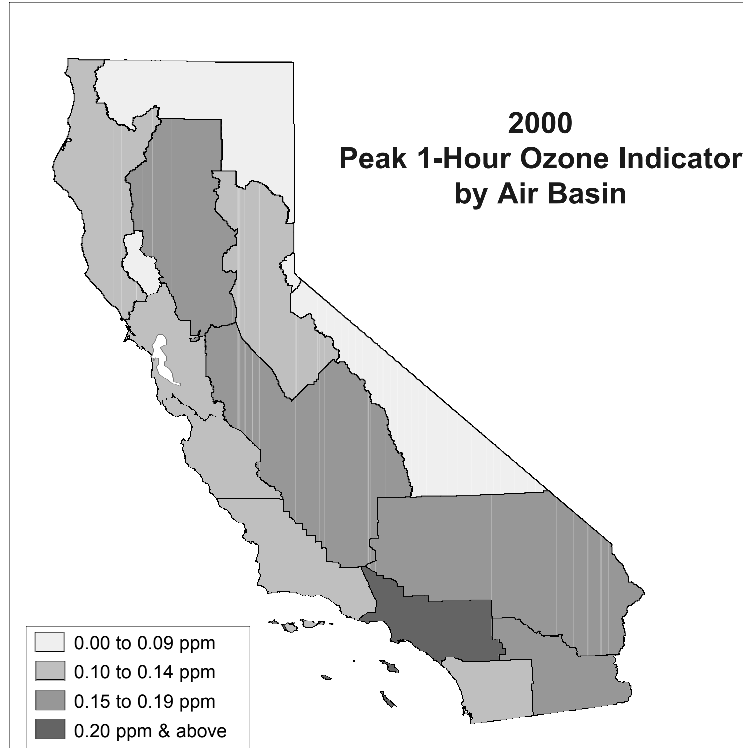

Figure 2-3

Ozone - 2000 Air Quality Tables

Maximum Peak 1-Hour Indicator by Air Basin

AIR BASIN	2000 Maximum Peak 1-Hour Indicator in parts per million	Number of Days in 2000 above State Standard	Number of Days in 2000 above National 1-Hour Standard
Great Basin Valleys Air Basin	0.09	0	0
Lake County Air Basin	0.08	0	0
Lake Tahoe Air Basin	0.09	0	0
Mojave Desert Air Basin	0.15	86	11
Mountain Counties Air Basin	0.14	51	4
North Central Coast Air Basin	0.10	3	0
North Coast Air Basin	0.11	0	0
Northeast Plateau Air Basin	0.09	3	1
Sacramento Valley Air Basin	0.15	42	5
Salton Sea Air Basin	0.15	54	5
San Diego Air Basin	0.13	24	0
San Francisco Bay Area Air Basin	0.14	12	3
San Joaquin Valley Air Basin	0.16	114	30
South Central Coast Air Basin	0.13	38	2
South Coast Air Basin	0.21	115	33

Table 2-7

Top Sites with 1-Hour Peak Indicator Values above the State Ozone Standard

Mojave Desert Air Basin
- Phelan-Beekley Rd. & Phelan Rd.
- Hesperia-Olive Street
- Lancaster-W Pondera Street
- Joshua Tree-National Monument
- Victorville-Armagosa Road

Mountain Counties Air Basin
- Cool-Highway 193
- Jackson-Clinton Road
- Placerville-Gold Nugget Way
- San Andreas-Gold Strike Road
- Grass Valley-Litton Building

North Central Coast Air Basin
- Pinnacles National Monument
- Hollister-Fairview Road

North Coast Air Basin
- Healdsburg-Municipal Airport

Sacramento Valley Air Basin
- Sloughhouse
- Folsom-Natoma Street
- Roseville-N Sunrise Blvd.
- Auburn-Dewitt C Avenue
- Sacramento-Del Paso Manor

Salton Sea Air Basin
- Calexico-Ethel Street
- Palm Springs-Fire Station
- Calexico-East
- Indio-Jackson Street

San Diego Air Basin
- Alpine-Victoria Drive
- Escondido-East Valley Parkway
- El Cajon-Redwood Avenue
- San Diego-Overland Avenue
- Camp Pendleton

San Francisco Bay Area Air Basin
- Livermore-Old 1st Street
- San Martin-Murphy Avenue
- Concord-2975 Treat Blvd.
- Fairfield-Bay Area AQMD
- Livermore-793 Rincon Avenue

San Joaquin Valley Air Basin
- Clovis-N Villa Avenue
- Parlier
- Edison
- Fresno-1st Street
- Fresno-Sierra Parkway #2

South Central Coast Air Basin
- Simi Valley-Cochran Street
- Paso Robles-Santa Fe Avenue
- Ojai-Ojai Avenue
- Thousand Oaks-Moorpark Road
- Ventura County-W Casitas Pass Rd.

Table 2-8

Top Sites with 1-Hour Peak Indicator Values above the State Ozone Standard

South Coast Air Basin

- Crestline
- Glendora-Laurel
- Redlands-Dearborn
- San Bernardino-4th Street
- Upland

Sites with 1-hour peak indicator values above the level of the State ozone standard during 2000. The top five sites in each air basin are listed in descending order of their peak indicator value. If an air basin is not listed, the peak indicator values at sites in that air basin were not above the State ozone standard.

Table 2-8 (continued)

2001 Preliminary Ozone Data

Although ozone concentrations are monitored continuously at the air quality monitoring sites, there is a delay between the time the concentrations are measured and the time they are quality assured and approved for final use. Because 2000 is the last year for which complete and approved data are available, that is the end year used for the air quality trends in this almanac. However, preliminary data for January through October 2001 are available and are summarized in Table 2-9. The table includes several statistics, including the maximum measured 1-hour ozone concentration, the number of days above the State ozone standard, and the number of days above both the national 1-hour and the national 8-hour ozone standards. These statistics are summarized for the five most populated areas of California: South Coast Air Basin, San Francisco Bay Area Air Basin, San Joaquin Valley Air Basin (minus several Sierra mountain sites), San Diego Air Basin, and Sacramento Metropolitan Area. Because data for all of 2001 were not complete at the time this almanac was published, no annual statistics are included. Furthermore, because the statistics are based on preliminary data, they are subject to change.

Area	Maximum 1-Hour Concentration (ppm)	Days Exceeding the Standard		
		State 1-Hour	National 1-Hour	National 8-Hour
South Coast	0.19	121	36	100
San Francisco Bay Area	0.13	15	1	7
San Joaquin Valley	0.15	117	28	101
San Diego	0.14	29	2	17
Sacramento Metro Area	0.15	54	4	45

Table 2-9

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Particulate Matter (PM_{10} and $PM_{2.5}$)

2001 Statewide Emission Inventory - Directly Emitted PM_{10} by Category

The PM_{10} emission inventory includes only directly emitted particulate emissions. However, particulate matter can also be formed in the atmosphere. This secondary PM_{10} is formed by reactions that are driven by emissions of ROG, NO_x, and SO_x. In urban areas (or on a seasonal basis), secondary particulate matter may be the dominant contributor to PM_{10} levels. As a result, PM_{10} control strategies need to account for the relative contribution of both secondary and directly emitted particles.

Area-wide sources account for about 89 percent of the statewide emissions of directly emitted PM_{10}. The major area-wide source of PM_{10} is fugitive dust, especially dust from unpaved and paved roads, agricultural operations, and construction and demolition. Fugitive dust emissions from unpaved and paved roads are related to motor vehicle population levels due to vehicular travel on both types of roads. Other sources of PM_{10} emissions include brake and tire wear, residential wood burning, and industrial sources. Exhaust emissions from mobile sources contribute only a very small portion of directly emitted PM_{10} emissions, but are a major source of the ROG and NO_x that form secondary particles.

PM10 Emissions (annual average)		
Emissions Source	**tons/day**	**Percent**
Stationary Sources	139	6%
Area-wide Sources	2076	89%
On-Road Mobile	53	2%
Gasoline Vehicles	35	2%
Diesel Vehicles	18	1%
Other Mobile	70	2%
Total Statewide	*2338*	*100%*

Table 2-10

Largest Stationary Sources Statewide

Largest Stationary Sources of PM_{10} Statewide

Air Basin	Facility Name	City	PM_{10} (Tons/Year)
Mojave Desert	National Cement Co.	Lebec	756
Mojave Desert	U.S. Borax	Boron	664
Mountain Counties	Ampine (Wood Products)	Martell	565
San Joaquin Valley	Port Of Stockton	Stockton	536
Mojave Desert	IMC Chemicals, Inc.	Trona	526
Mojave Desert	Mitsubishi Cement	Lucerne Valley	472
Mojave Desert	Calaveras Cement Co.	Monolith	404
San Francisco Bay Area	Martinez Refining Company	Martinez	379
San Joaquin Valley	Kern Oil & Refining Co.	Bakersfield	377
Mojave Desert	Cal Portland Cement Co.	Mojave	329

Facility totals are the most recent available data. Some facilities may have reduced or increased emissions since these data were collected. These changes will be reflected in subsequent almanacs.
The list of facilities does not include military bases, landfills, or airports.

Table 2-11

PM_{10} - 2000 Air Quality

PM_{10} is California's most complex air pollution problem. PM_{10} is not a single substance, but a mixture of a number of highly diverse types of particles and liquid droplets. The chemical make-up of ambient PM_{10} and the origins of the PM_{10} particles vary widely from one area to another. In addition, although there is not a single "PM_{10} season," the cause of PM_{10} can vary by season. Furthermore, the timing of the high PM_{10} season can vary from one area to another.

Most areas of California have either 24-hour or annual PM_{10} concentrations that exceed the State standards and pose a serious health problem. Some areas exceed both standards. Several areas also exceed the national standards. The highest annual values occur in the Salton Sea and South Coast Air Basins. In contrast to the annual values, the highest 24-hour concentrations occur in the desert areas where wind-blown dust contributes to local PM_{10} problems. Particles resulting from combustion contribute to high PM_{10} in a number of urban areas. While many of the control programs implemented for ozone will also reduce PM_{10}, more controls specifically for PM_{10} will be needed to reach attainment.

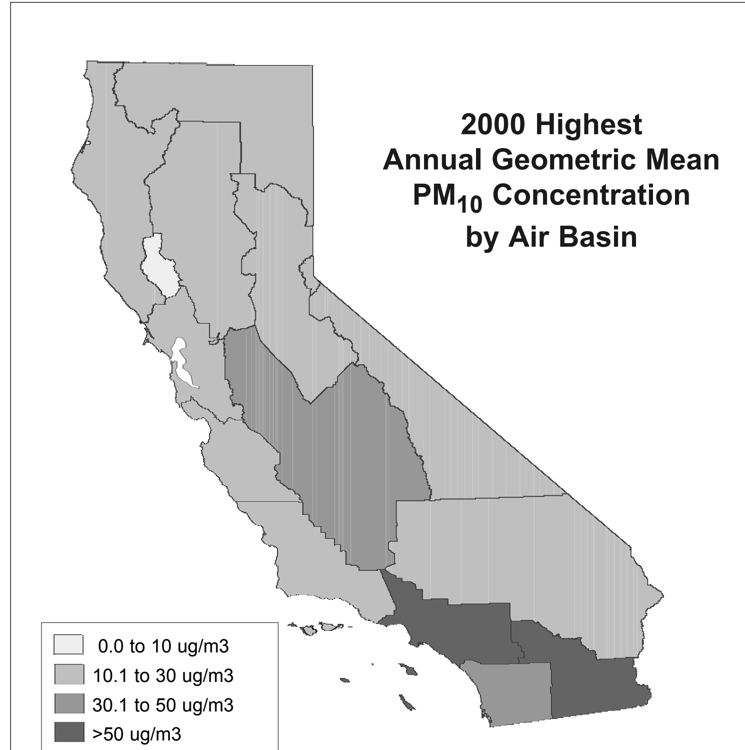

Figure 2-4

PM_{10} - 2000 Air Quality Tables

Maximum Annual Geometric Mean PM_{10} Concentration by Air Basin

AIR BASIN	2000 Maximum Annual Geometric Mean in micrograms/cubic meter
Great Basin Valleys Air Basin	17.4
Lake County Air Basin	9.6
Lake Tahoe Air Basin	17.6
Mojave Desert Air Basin	19.3
Mountain Counties Air Basin	16.1
North Central Coast Air Basin	23.5
North Coast Air Basin	19.8
Northeast Plateau Air Basin	17.6
Sacramento Valley Air Basin	24.7
Salton Sea Air Basin	73.0
San Diego Air Basin	31.6
San Francisco Bay Area Air Basin	23.7
San Joaquin Valley Air Basin	45.4
South Central Coast Air Basin	26.2
South Coast Air Basin	54.6

Table 2-12

Top Sites with Annual Geometric Mean Concentrations Violating the State PM_{10} Standard

Salton Sea Air Basin

- Calexico-Grant Street
- Calexico-Ethel Street
- Indio-Jackson Street
- Brawley-Main Street
- Westmoreland-West 1st Street

San Diego Air Basin

- Otay Mesa-Paseo International
- San Diego-Logan Avenue

San Joaquin Valley Air Basin

- Bakersfield-Golden State Highway
- Visalia-North Church Street
- Hanford-South Irwin Street
- Bakersfield-5558 California Avenue
- Fresno-Drummond Street

South Coast Air Basin

- Riverside-Rubidoux
- Fontana-Arrow Highway
- Ontario-1408 Francis Street
- San Bernardino-4th Street
- Norco-Norconian

Sites with annual geometric mean PM_{10} concentrations violating the State PM_{10} standard during 2000. The top five sites in each air basin are listed in descending order of their maximum annual concentration. If an air basin is not listed, the annual PM_{10} concentrations at sites in that air basin were not above the State annual PM_{10} standard.

Table 2-13

California's $PM_{2.5}$ Monitoring Program

As explained in the Introduction section of Chapter 1, the United States Environmental Protection Agency promulgated new national standards for particulate matter (PM) during July 1997. The national PM standards apply to the mass concentrations of particles with aerodynamic diameters less than 2.5 microns ($PM_{2.5}$) and less than 10 microns (PM_{10}). Notwithstanding the ongoing legal issues related to the challenge of the national standards, the U.S. EPA is continuing to move forward with its $PM_{2.5}$ monitoring program which requires the states to establish and operate a network of $PM_{2.5}$ mass and speciation monitors.

During 1998, the ARB and local air pollution control districts and air quality management districts began establishing a comprehensive network of $PM_{2.5}$ monitoring sites. California's $PM_{2.5}$ monitoring network now comprises 82 monitoring sites. $PM_{2.5}$ mass concentrations are measured at all of these sites using federally approved methods

In addition to the current $PM_{2.5}$ mass monitors, the ARB and local air districts deploy other types of instruments at sites throughout the network, including continuous $PM_{2.5}$ mass monitors and different types of speciation monitors. Currently, 21 continuous mass monitors are operating throughout the State, and 15 more are planned by mid-2002. These monitors collect hourly data that are useful for public reporting, understanding the daily and episodic behavior of fine particles, background monitoring, and transport assessment. Deployment of the $PM_{2.5}$ speciation network has started, with six monitors currently operating. More monitors will be phased in over the next several years, allowing time to evaluate newly emerging measurement technologies. The specifics of the existing and proposed $PM_{2.5}$ monitoring network are detailed in an ARB report titled *"2001 California $PM_{2.5}$ Monitoring Network Description"* (August 2001). The report is available on the web at: *www.arb.ca.gov/aqd/pm25/pmfnet01.htm*.

The majority of sites in California's $PM_{2.5}$ network began sampling in early 1999 and now have sufficient data for making some comparisons among the sites. The 1999 and 2000 data are summarized in Table 2-14. Each site in the $PM_{2.5}$ network is listed, regardless of the amount of data that have been collected. Table 2-14 lists the Monitoring Planning Area, the site name, and for each year: the highest 24-hour average $PM_{2.5}$ mass concentration, the average of quarters (annual average), an indication of data completeness, the number of months represented, the number of quarters represented, and the total number of valid observations during the year. The national $PM_{2.5}$ standards are based on three years of data and percentile averages. As a result, the data in Table 2-14 are not yet sufficient for determining which areas are attainment and which areas are nonattainment.

The high 24-hour $PM_{2.5}$ mass concentrations measured throughout California during 1999 and 2000 reflect a wide range of values. The highest 24-hour concentrations among all sites range from 9.4 $\mu g/m^3$ at Lakeport-Lakeport Blvd to 160 $\mu g/m^3$ at Fresno-1st Street. Neither of these sites has complete data for the entire year. The average of quarters, or annual average concentrations, among sites with valid data range from 3.8 $\mu g/m^3$ at Echo Summit to 31.2 $\mu g/m^3$ at Bakersfield-5558 California Avenue. In general, both the highest 24-hour and annual average $PM_{2.5}$ concentrations are found at sites in the South Coast Air Basin and San Joaquin Valley Air Basin. However, relatively high 24-hour measurements are also found in the Sacramento Valley Air Basin, the San Francisco Bay Area Air Basin, and certain parts of the Mountain Counties Air Basin. The annual concentrations at sites in these areas are substantially lower than those in the South Coast and San Joaquin Valley Air Basins. Among all sites with valid annual concentrations, values exceed 15 $\mu g/m^3$ (the level of the national $PM_{2.5}$ standard) at sites in Imperial County, the Sacramento Valley Air Basin, San Diego County, the San Joaquin Valley Air Basin, and the South Coast Air Basin.

The temporal and spatial nature of $PM_{2.5}$ concentrations within each air basin shows a mixture of isolated exceedances as well as periods of elevated $PM_{2.5}$ concentrations that are more prolonged and regional in nature. In general, however, the highest 24-hour concentrations during 1999 and 2000 occurred in November, December, and January, while the lowest occurred between March and August. Most areas follow this seasonal pattern to some degree. The seasonality is most pronounced in the San Joaquin Valley Air Basin, where the November, December, January concentrations were on the order of 4 to 5 times greater than those for March through August. Less pronounced seasonality following this same pattern occurred in the San Francisco Bay Area Air Basin, the San Diego Air Basin, the Sacramento Valley Air Basin, the North Coast Air Basin, and the Mojave Desert Air Basin. In other areas, the highest $PM_{2.5}$ concentrations occurred throughout the year, though in most cases, the "high" values for these areas were low, when compared with those areas showing seasonality. The exception is the South Coast Air Basin where fairly high values occurred throughout the year.

California monitoring sites with both $PM_{2.5}$ and PM_{10} data can be used to examine seasonal variations in the difference between $PM_{2.5}$ and PM_{10} concentrations. Similar to the seasonal variations seen in $PM_{2.5}$ concentrations, the difference between $PM_{2.5}$ and PM_{10} concentrations is generally smallest in the winter months in most air basins. In fact, the $PM_{2.5}$ fraction can comprise 80 to 90 percent of the PM_{10} concentrations in areas such as the San Joaquin Valley and Sacramento Valley Air Basins. The lowest $PM_{2.5}$ fractions are found in the Salton Sea and Great Basin Valleys Air Basins, both of which often experience severe coarse particle fugitive dust events.

In contrast, the difference between $PM_{2.5}$ and PM_{10} concentrations is generally greatest in the summer and early fall. During these months, geological material (which generally comprises particles that are larger than $PM_{2.5}$, or coarse particles) accounts for the major difference between $PM_{2.5}$ and PM_{10} concentrations. The coarse particle fraction tends to decrease in the winter, when storms suppress fugitive dust producing activities. The South Coast Air Basin provides an exception to this however, with a significant coarse fraction even into early winter.

Similar to PM_{10}, the contrast in $PM_{2.5}$ concentrations throughout California makes the $PM_{2.5}$ problem difficult and complex. The emission sources can be very diverse from one area to another. Furthermore, because of the variety of sources and the size and chemical composition of the particles, both the nature and causes of the problem can vary considerably from area-to-area. As a result, even though two areas may have similar $PM_{2.5}$ concentration levels, they may have very different $PM_{2.5}$ problems. Adding to the complexity, a single area may have a different type of PM problem during different times of the year. Monitoring programs will help in making strides toward understanding and controlling the $PM_{2.5}$ problem.

$PM_{2.5}$ Air Quality Data

Monitoring Planning Area / Site Name	Year	High 24-Hour Conc. (µg/m3)	Average of Quarters (µg/m3)[1]	Valid?[1]	Number of Months[2]	Number of Quarters[2]	Number of Observations[3]
Bay Area AQMD							
Concord-2975 Treat Blvd	1999	56.6	12.0	No	10	4	110
	2000	52.6	10.9	Yes	12	4	191
Fremont-Chapel Way	1999	56.5	13.9	No	12	4	76
	2000	44.8	10.6	Yes	12	4	89
Livermore-793 Rincon Avenue	1999	63.1	28.0	No	1	1	9
	2000	56.4	11.2	Yes	12	4	86
Redwood City	1999	59.7	12.1	No	11	4	68
	2000	44.0	10.9	Yes	12	4	82
San Francisco-Arkansas Street	1999	71.2	12.6	No	11	4	121
	2000	47.9	11.4	No	12	4	193
San Jose-4th Street	1999	70.0	12.3	No	10	4	117
	2000	64.2	13.6	Yes	12	4	180
San Jose-Tully Road	1999	77.0	14.5	No	10	4	117
	2000	67.2	12.2	No	12	4	188
Santa Rosa-5th Street	1999	54.9	12.1	No	12	4	69
	2000	40.1	10.3	Yes	12	4	91
Vallejo-304 Tuolumne Street	1999	90.5	14.1	No	10	4	63
	2000	60.1	11.6	Yes	12	4	90

[1] Average of Quarters and Valid? are calculated according to the methods specified in 40 CFR Part 50, Appendix N. Typically, a year is complete, and the Average of Quarters is therefore valid, if 75% or more of the expected measurements are available in each quarter. Under certain circumstances, however, an Average of Quarters can be deemed valid with fewer measurements (see 40 CFR Part 50, Appendix N for details).
[2] Number of Months and Number of Quarters are the number of months and number of quarters, respectively, that include at least one measurement.
[3] Number of Observations is the total number of 24-hour measurements represented at each site.

Table 2-14

$PM_{2.5}$ Air Quality Data

Monitoring Planning Area / Site Name	Year	High 24-Hour Conc. (µg/m3)	Average of Quarters (µg/m3)[1]	Valid?[1]	Number of Months[2]	Number of Quarters[2]	Number of Observations[3]
Coachella Valley							
Indio-Jackson Street	1999	29.6	12.8	No	10	4	83
	2000	28.6	11.2	Yes	12	4	115
Palm Springs-Fire Station	2000	28.5	9.6	Yes	12	4	120
Great Basin Unified APCD							
Keeler-Cerro Gordo Road	1999	40.7	7.2	No	10	4	69
	2000	68.0	9.6	No	8	3	72
Mammoth Lakes-Gateway HC	2000	31.0	18.0	No	2	1	13
Imperial County APCD							
Brawley-Main Street	1999	44.2	11.2	No	8	4	65
	2000	55.4	12.3	No	11	4	76
Calexico-Ethel Street	1999	51.6	15.2	Yes	12	4	106
	2000	84.2	16.9	Yes	12	4	113
El Centro-9th Street	1999	52.5	11.7	No	12	4	103
	2000	55.6	10.4	No	10	4	86
Lake County Air Basin							
Lakeport-Lakeport Blvd	1999	14.5	4.4	No	12	4	47
	2000	9.4	4.0	No	6	2	28

[1] Average of Quarters and Valid? are calculated according to the methods specified in 40 CFR Part 50, Appendix N. Typically, a year is complete, and the Average of Quarters is therefore valid, if 75% or more of the expected measurements are available in each quarter. Under certain circumstances, however, an Average of Quarters can be deemed valid with fewer measurements (see 40 CFR Part 50, Appendix N for details).
[2] Number of Months and Number of Quarters are the number of months and number of quarters, respectively, that include at least one measurement.
[3] Number of Observations is the total number of 24-hour measurements represented at each site.

Table 2-14 (continued)

$PM_{2.5}$ Air Quality Data

Monitoring Planning Area / Site Name	Year	High 24-Hour Conc. (µg/m3)	Average of Quarters (µg/m3)[1]	Valid?[1]	Number of Months[2]	Number of Quarters[2]	Number of Observations[3]
Lake Tahoe Air Basin							
Echo Summit	2000	10.0	3.8	Yes	12	4	122
South Lake Tahoe-Sandy Way	1999	21.0	8.3	Yes	12	4	59
	2000	23.0	7.8	Yes	12	4	59
Mojave Desert Air Basin							
Lancaster-W Pondera Street	1999	47.6	11.2	Yes	12	4	113
	2000	36.0	10.5	Yes	12	4	113
Mojave-923 Poole Street	1999	27.6	8.5	No	11	4	99
	2000	28.7	7.5	No	12	4	74
Ridgecrest-Las Flores Avenue	1999	22.9	8.5	No	7	3	48
	2000	38.6	7.8	No	12	4	91
Victorville-Armagosa Road	1999	25.4	11.9	Yes	12	4	114
Victorville-14306 Park Avenue	2000	31.0	11.9	Yes	12	4	115
Monterey Bay Unified APCD							
Salinas-Natividad Road #2	1999	30.8	9.8	No	11	4	102
Salinas-#3	2000	26.4	7.9	No	12	4	73
Santa Cruz-2544 Soquel Avenue	1999	31.4	9.4	No	11	4	89
	2000	23.3	7.9	No	12	4	72

[1] Average of Quarters and Valid? are calculated according to the methods specified in 40 CFR Part 50, Appendix N. Typically, a year is complete, and the Average of Quarters is therefore valid, if 75% or more of the expected measurements are available in each quarter. Under certain circumstances, however, an Average of Quarters can be deemed valid with fewer measurements (see 40 CFR Part 50, Appendix N for details).
[2] Number of Months and Number of Quarters are the number of months and number of quarters, respectively, that include at least one measurement.
[3] Number of Observations is the total number of 24-hour measurements represented at each site.

Table 2-14 (continued)

$PM_{2.5}$ Air Quality Data

Monitoring Planning Area / Site Name	Year	High 24-Hour Conc. (µg/m3)	Average of Quarters (µg/m3)[1]	Valid?[1]	Number of Months[2]	Number of Quarters[2]	Number of Observations[3]
Mountain Counties Air Basin							
Grass Valley-Litton Building	1999	31.0	7.6	No	12	4	52
	2000	27.0	6.2	No	12	4	45
Portola-Commercial Street	1999	70.0	11.7	No	7	3	46
Portola-161 Nevada Street	2000	46.0	10.6	No	8	3	67
Quincy-N Church Street	1999	92.0	13.3	No	10	4	73
	2000	37.0	9.4	No	12	4	104
San Andreas-Gold Strike Road	1999	33.0	11.1	Yes	12	4	59
	2000	48.0	9.0	Yes	12	4	63
Truckee-Fire Station	1999	50.0	9.0	No	8	4	46
	2000	23.0	8.8	Yes	12	4	111
North Coast Air Basin							
Eureka-Health Dept 6th and I Street	1999	36.9	9.1	Yes	12	4	59
	2000	24.0	9.1	Yes	12	4	58
Ukiah-County Library	1999	35.6	8.9	Yes	12	4	58
	2000	20.0	7.2	No	12	4	57
Northeast Plateau Air Basin							
Alturas-W 4th Street	1999	40.0	7.9	Yes	12	4	56
	2000	38.0	8.5	Yes	12	4	58

[1] Average of Quarters and Valid? are calculated according to the methods specified in 40 CFR Part 50, Appendix N. Typically, a year is complete, and the Average of Quarters is therefore valid, if 75% or more of the expected measurements are available in each quarter. Under certain circumstances, however, an Average of Quarters can be deemed valid with fewer measurements (see 40 CFR Part 50, Appendix N for details).
[2] Number of Months and Number of Quarters are the number of months and number of quarters, respectively, that include at least one measurement.
[3] Number of Observations is the total number of 24-hour measurements represented at each site.

Table 2-14 (continued)

$PM_{2.5}$ Air Quality Data

Monitoring Planning Area / Site Name	Year	High 24-Hour Conc. (µg/m3)	Average of Quarters (µg/m3)[1]	Valid?[1]	Number of Months[2]	Number of Quarters[2]	Number of Observations[3]
Sacramento Valley Air Basin							
Chico-Manzanita Avenue	1999	73.0	17.5	Yes	12	4	59
	2000	98.0	15.8	Yes	12	4	61
Colusa-Sunrise Blvd	1999	55.0	13.2	No	12	4	85
	2000	28.0	8.0	Yes	12	4	114
Redding-Health Dept Roof	1999	57.0	12.9	Yes	12	4	57
	2000	45.0	9.2	No	12	4	55
Roseville-N Sunrise Blvd	1999	79.0	13.4	Yes	12	4	59
	2000	51.0	12.2	Yes	12	4	59
Sacramento-Del Paso Manor	1999	86.0	23.7	No	7	3	66
	2000	81.0	11.3	No	9	3	38
Sacramento-Health Dept Stockton Blvd	1999	86.0	16.2	Yes	11	4	158
	2000	65.0	10.3	No	8	3	128
Sacramento-T Street	1999	108.0	17.0	Yes	12	4	264
	2000	67.0	12.3	Yes	12	4	331
Woodland-Gibson Road	1999	70.0	16.3	Yes	11	4	98
	2000	46.0	10.3	Yes	12	4	116
Yuba City-Almond Street	1999	58.0	15.9	Yes	12	4	58
	2000	44.0	11.2	Yes	12	4	61

[1] Average of Quarters and Valid? are calculated according to the methods specified in 40 CFR Part 50, Appendix N. Typically, a year is complete, and the Average of Quarters is therefore valid, if 75% or more of the expected measurements are available in each quarter. Under certain circumstances, however, an Average of Quarters can be deemed valid with fewer measurements (see 40 CFR Part 50, Appendix N for details).
[2] Number of Months and Number of Quarters are the number of months and number of quarters, respectively, that include at least one measurement.
[3] Number of Observations is the total number of 24-hour measurements represented at each site.

Table 2-14 (continued)

$PM_{2.5}$ Air Quality Data

Monitoring Planning Area / Site Name	Year	High 24-Hour Conc. (µg/m3)	Average of Quarters (µg/m3)[1]	Valid?[1]	Number of Months[2]	Number of Quarters[2]	Number of Observations[3]
San Diego County APCD							
Chula Vista	1999	47.1	14.5	No	12	4	103
	2000	40.5	13.1	Yes	12	4	101
El Cajon-Redwood Avenue	1999	47.0	16.4	Yes	12	4	321
	2000	65.5	15.7	Yes	12	4	292
Escondido-E Valley Parkway	1999	64.3	18.0	Yes	12	4	255
	2000	65.9	15.8	Yes	12	4	305
San Diego-12th Avenue	1999	46.9	17.7	Yes	12	4	289
	2000	66.3	15.6	Yes	12	4	273
San Diego-Overland Avenue	1999	43.4	14.1	No	12	4	85
	2000	48.5	12.4	Yes	12	4	101
San Joaquin Valley Unified APCD							
Bakersfield-5558 California Avenue	1999	134.8	31.2	Yes	12	4	294
	2000	112.7	23.0	Yes	12	4	329
Bakersfield-Golden State Highway	1999	133.9	26.2	Yes	12	4	84
	2000	108.1	22.6	Yes	12	4	91
Bakersfield-410 E Planz Road	2000	91.0	20.3	Yes	11	4	102
Clovis-N Villa Avenue	1999	97.7	19.8	Yes	12	4	82
	2000	75.1	16.3	Yes	12	4	70

[1] Average of Quarters and Valid? are calculated according to the methods specified in 40 CFR Part 50, Appendix N. Typically, a year is complete, and the Average of Quarters is therefore valid, if 75% or more of the expected measurements are available in each quarter. Under certain circumstances, however, an Average of Quarters can be deemed valid with fewer measurements (see 40 CFR Part 50, Appendix N for details).
[2] Number of Months and Number of Quarters are the number of months and number of quarters, respectively, that include at least one measurement.
[3] Number of Observations is the total number of 24-hour measurements represented at each site.

Table 2-14 (continued)

$PM_{2.5}$ Air Quality Data

Monitoring Planning Area / Site Name	Year	High 24-Hour Conc. (µg/m3)	Average of Quarters (µg/m3)[1]	Valid?[1]	Number of Months[2]	Number of Quarters[2]	Number of Observations[3]
San Joaquin Valley Unified APCD (cont)							
Corcoran-Patterson Avenue	1999	53.1	14.3	No	8	3	44
	2000	76.0	16.4	Yes	11	4	67
Fresno-1st Street	1999	136.0	27.7	Yes	12	4	275
	2000	160.0	25.5	No	9	4	194
Fresno-Pacific College	2000	83.5	18.4	Yes	12	4	77
Merced-2334 M Street	1999	108.7	22.6	No	9	3	53
	2000	86.1	17.3	Yes	12	4	88
Modesto-14th Street	1999	108.0	24.9	Yes	12	4	117
	2000	77.0	18.7	Yes	12	4	122
Stockton-Hazelton Street	1999	101.0	19.7	Yes	12	4	117
	2000	78.0	15.5	Yes	12	4	123
Visalia-N Church Street	1999	123.0	27.6	Yes	12	4	117
	2000	105.0	23.9	Yes	12	4	115
San Luis Obispo County APCD							
Atascadero-Lewis Avenue	1999	27.5	9.6	Yes	12	4	59
	2000	52.7	10.8	Yes	12	4	58
San Luis Obispo-Marsh Street	1999	20.0	8.2	Yes	12	4	54
	2000	28.2	8.3	No	12	4	55

[1] Average of Quarters and Valid? are calculated according to the methods specified in 40 CFR Part 50, Appendix N. Typically, a year is complete, and the Average of Quarters is therefore valid, if 75% or more of the expected measurements are available in each quarter. Under certain circumstances, however, an Average of Quarters can be deemed valid with fewer measurements (see 40 CFR Part 50, Appendix N for details).
[2] Number of Months and Number of Quarters are the number of months and number of quarters, respectively, that include at least one measurement.
[3] Number of Observations is the total number of 24-hour measurements represented at each site.

Table 2-14 (continued)

$PM_{2.5}$ Air Quality Data

Monitoring Planning Area / Site Name	Year	High 24-Hour Conc. (µg/m3)	Average of Quarters (µg/m3)[1]	Valid?[1]	Number of Months[2]	Number of Quarters[2]	Number of Observations[3]
Santa Barbara County APCD							
Santa Barbara-W Carillo Street	1999	21.3	12.9	No	6	4	15
	2000	24.2	13.1	No	10	4	44
Santa Maria-Broadway	1999	24.3	11.4	No	5	2	22
	2000	28.7	9.8	Yes	12	4	57
South Coast Air Basin							
Anaheim-Harbor Blvd	1999	68.6	25.9	No	8	4	92
	2000	113.9	20.3	Yes	12	4	273
Azusa	1999	81.3	25.0	Yes	12	4	144
	2000	92.5	20.2	Yes	12	4	333
Big Bear City-501 W Valley Blvd	1999	32.1	10.3	Yes	11	4	97
	2000	29.0	10.2	No	12	4	59
Burbank-W Palm Avenue	1999	79.4	22.9	Yes	12	4	106
	2000	84.4	21.2	No	9	4	70
Fontana-Arrow Highway	1999	97.9	25.7	Yes	12	4	121
	2000	72.9	24.5	Yes	12	4	112
Los Angeles-North Main Street	1999	69.3	23.0	Yes	12	4	136
	2000	87.8	21.9	Yes	12	4	334

[1] Average of Quarters and Valid? are calculated according to the methods specified in 40 CFR Part 50, Appendix N. Typically, a year is complete, and the Average of Quarters is therefore valid, if 75% or more of the expected measurements are available in each quarter. Under certain circumstances, however, an Average of Quarters can be deemed valid with fewer measurements (see 40 CFR Part 50, Appendix N for details).
[2] Number of Months and Number of Quarters are the number of months and number of quarters, respectively, that include at least one measurement.
[3] Number of Observations is the total number of 24-hour measurements represented at each site.

Table 2-14 (continued)

$PM_{2.5}$ Air Quality Data

Monitoring Planning Area / Site Name	Year	High 24-Hour Conc. (µg/m3)	Average of Quarters (µg/m3)[1]	Valid?[1]	Number of Months[2]	Number of Quarters[2]	Number of Observations[3]
South Coast Air Basin (cont)							
Lynwood	1999	67.7	24.3	Yes	12	4	110
	2000	82.1	23.0	Yes	12	4	121
Mission Viejo-26081 Via Pera	1999	56.6	17.0	No	7	3	65
	2000	94.7	14.7	Yes	12	4	119
North Long Beach	1999	66.9	20.7	Yes	12	4	148
	2000	81.5	19.6	Yes	12	4	304
Ontario-1408 Francis Street	1999	85.8	25.4	Yes	12	4	96
	2000	73.4	24.1	Yes	12	4	111
Pasadena-S Wilson Avenue	1999	73.0	19.9	No	10	4	95
	2000	66.3	19.4	Yes	12	4	110
Pico Rivera	1999	85.6	25.7	Yes	12	4	111
	2000	89.5	24.0	Yes	12	4	116
Reseda	1999	79.0	17.3	Yes	10	4	71
	2000	67.5	18.0	Yes	12	4	108
Riverside-Magnolia	1999	89.9	26.7	Yes	12	4	110
	2000	79.3	25.3	Yes	12	4	111
Riverside-Rubidoux	1999	111.2	31.0	Yes	12	4	137
	2000	119.6	28.3	Yes	12	4	304
San Bernardino-4th Street	1999	121.4	25.6	Yes	12	4	104
	2000	89.8	25.9	Yes	12	4	92

[1] Average of Quarters and Valid? are calculated according to the methods specified in 40 CFR Part 50, Appendix N. Typically, a year is complete, and the Average of Quarters is therefore valid, if 75% or more of the expected measurements are available in each quarter. Under certain circumstances, however, an Average of Quarters can be deemed valid with fewer measurements (see 40 CFR Part 50, Appendix N for details).
[2] Number of Months and Number of Quarters are the number of months and number of quarters, respectively, that include at least one measurement.
[3] Number of Observations is the total number of 24-hour measurements represented at each site.

Table 2-14 (continued)

$PM_{2.5}$ Air Quality Data

Monitoring Planning Area / Site Name	Year	High 24-Hour Conc. (µg/m3)	Average of Quarters (µg/m3)[1]	Valid?[1]	Number of Months[2]	Number of Quarters[2]	Number of Observations[3]
Ventura County APCD							
El Rio-Rio Mesa School #2	1999	36.7	12.2	No	12	4	92
	2000	45.7	13.0	No	12	4	106
Piru-3301 Pacific Avenue	2000	37.6	10.7	No	2	1	13
Simi Valley-Cochran Street	1999	64.6	13.8	Yes	12	4	109
	2000	55.3	14.8	No	12	4	102
Thousand Oaks-Moorpark Road	1999	53.2	11.8	Yes	12	4	110
	2000	53.7	13.3	No	12	4	103

[1] Average of Quarters and Valid? are calculated according to the methods specified in 40 CFR Part 50, Appendix N. Typically, a year is complete, and the Average of Quarters is therefore valid, if 75% or more of the expected measurements are available in each quarter. Under certain circumstances, however, an Average of Quarters can be deemed valid with fewer measurements (see 40 CFR Part 50, Appendix N for details).
[2] Number of Months and Number of Quarters are the number of months and number of quarters, respectively, that include at least one measurement.
[3] Number of Observations is the total number of 24-hour measurements represented at each site.

Table 2-14 (continued)

PM_{10} and $PM_{2.5}$ - Linking Emissions Sources with Air Quality

Chemical Mass Balance (CMB) models are used to establish which sources and how much of their emissions contribute to ambient particulate matter (PM) concentrations. PM_{10} refers to particles 10 microns and smaller. $PM_{2.5}$, particles 2.5 microns and smaller, are a subset of PM_{10}. CMB models use chemical composition data from ambient PM samples and from emission sources. These data are often collected during special source attribution studies. The source attribution data presented in this section were derived from a variety of studies with differing degrees of chemical speciation. In general, however, the source categories can be interpreted in the following manner. The road and other dust, wood smoke, cooking, vehicle exhaust, and construction categories represent sources which directly emit particles. Road and other dust represents the combination of mechanically disturbed soil (paved and unpaved roads, agricultural activities) and wind-blown dust. Wood smoke generally represents residential wood combustion, but may also include combustion from other biomass burning such as agricultural or prescribed burning. The vehicle exhaust category represents direct motor vehicle exhaust particles from both gasoline and diesel vehicles. Construction reflects construction and demolition activities. Ammonium nitrate and ammonium sulfate represent secondary species (i.e., they form in the atmosphere from the emissions of nitrogen oxides (NO_x), sulfur oxides (SO_x), and ammonia). Combustion sources such as motor vehicles and stationary sources contribute to the NO_x that forms ammonium nitrate. Mobile sources such as diesel vehicles, locomotives, and ships and stationary combustion sources emit the SO_x that forms ammonium sulfate. Ammonia sources include animal feedlots, fertilizers, and motor vehicles. The other carbon sources category reflects organic sources not included in the source attribution models, such as natural gas combustion, as well as secondary organic carbon formation. The unidentified category represents the mass that cannot be accounted for by the identified source categories. It can include particle-bound water, as well as other unidentified sources.

The size, concentration, and chemical composition of PM vary by region and by season. A number of areas exhibit strong seasonal patterns. Other areas have a much more uniform distribution -- PM concentrations remain high throughout the year. In yet other areas, isolated PM exceedances can occur at any time of the year. The figures on the following pages present the best available source attribution data from CMB modeling for selected regions, which highlight the first two seasonal scenarios. These presentations are representative of typical days when the State PM_{10} standards are exceeded (refer to Chapter 1, page 23 for a review of the State standards). The fractions of the constituents shown can vary daily and from year to year, depending on factors such as meteorology.

In the San Joaquin Valley, the San Francisco Bay Area, and the Sacramento area, there is a strong seasonal variation in PM, with higher PM_{10} and $PM_{2.5}$ concentrations in the fall and winter months. These higher concentrations are due to increased activity for some emissions sources and meteorological conditions that are conducive to the build-up of PM. During the winter, the $PM_{2.5}$ size fraction drives the PM concentrations, and the major contributor to high levels of ambient $PM_{2.5}$ is the secondary formation of PM caused by the reaction of NO_x and ammonium to form ammonium nitrate. The San Joaquin Valley also records high PM_{10} levels during the fall. During this season, the coarse fraction ($PM_{2.5\text{-}10}$) drives the PM concentrations.

In the South Coast region, PM_{10} and $PM_{2.5}$ concentrations remain high throughout the year. The more uniform activity patterns of emission sources, as well as less variable weather patterns, leads to this more uniform concentration pattern. In other areas, high PM can be more episodic than seasonal. For example, in Owens Lake in the Great Basin Valleys Air Basin, episodic fugitive dust events lead to very high PM_{10} levels, with soil dust as the major contributor to ambient PM_{10}.

San Joaquin Valley Air Basin

Figures 2-5 and 2-6 illustrate source contributions to ambient PM in the San Joaquin Valley during the fall and winter. These are the results from a detailed chemical analysis of samples collected during the 1995 Integrated Monitoring Study (Magliano et al., 1999).

In the fall, at Corcoran, elevated concentrations of PM_{10} were associated with high levels of road and agricultural dust. NO_x emissions from mobile and stationary combustion sources, combined with ammonium, led to significant secondary ammonium nitrate contributions to PM_{10}. During the winter, in Fresno, secondary ammonium nitrate was the major contributor to $PM_{2.5}$ and PM_{10}. Emissions from wood smoke, vehicle exhaust particles, and other carbon sources also contributed significantly to $PM_{2.5}$ levels.

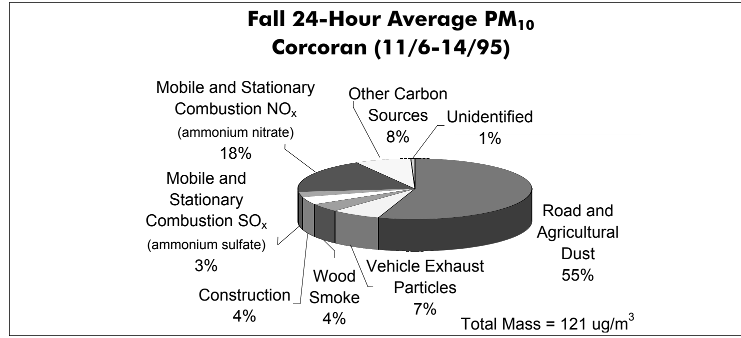

Figure 2-5

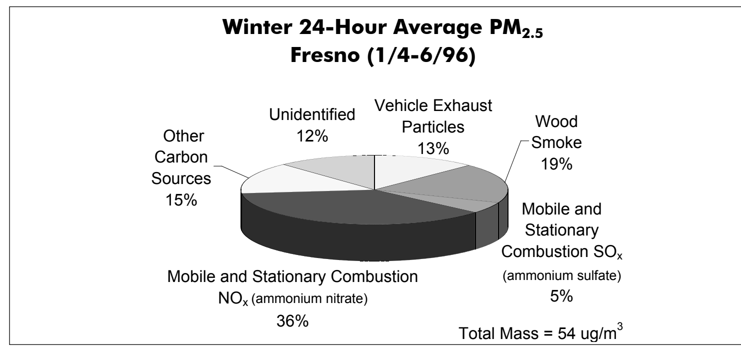

Figure 2-6

San Francisco Bay Area Air Basin

Figures 2-7 and 2-8 illustrate the sources of PM during the winter in the San Francisco Bay Area. The data are from the source apportionment analysis conducted by the Bay Area Air Quality Management District using samples collected during two special studies (Fairley, 1996, 2001).

During the winter, in San Jose, high PM concentrations are associated with high levels of wood smoke -- primarily from residential wood combustion, and cooking. NO_x emitted from mobile and stationary combustion sources, in combination with ammonium, contributes about one-fourth of the PM levels. Particle emissions from mobile and stationary combustion sources are also a major contributor to $PM_{2.5}$. Road dust is a significant contributor to PM_{10}, but not $PM_{2.5}$.

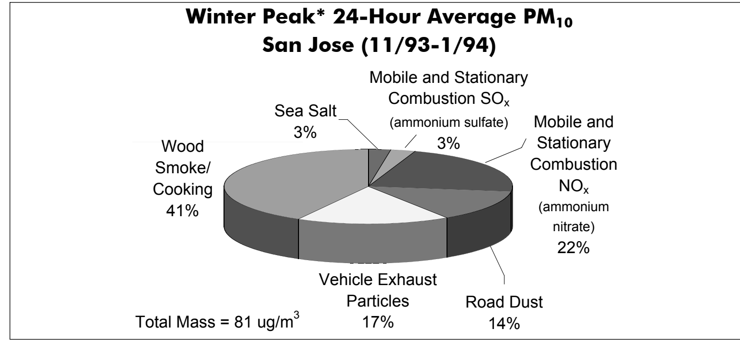

Figure 2-7 * Average of days with PM_{10} > 50 ug/m^3

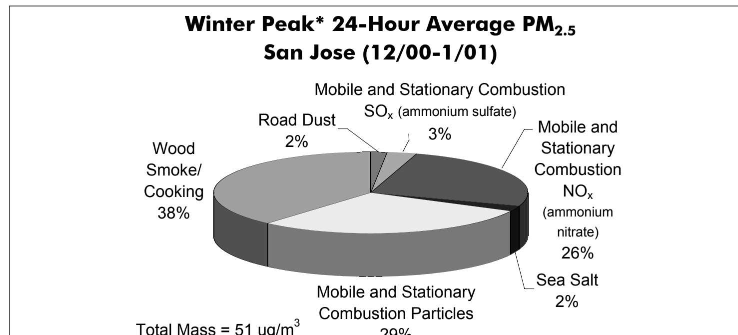

Figure 2-8 * Average of days with $PM_{2.5}$ > 40 ug/m^3

Sacramento Valley Air Basin

Figures 2-9 and 2-10 illustrate source contributions to ambient PM_{10} and $PM_{2.5}$ during the winter in Sacramento. The data are from the analysis of ambient air samples collected from November through January, during six years -- 1991 through 1996 (Motallebi, 1999).

NO_x emissions from mobile and stationary combustion sources, combined with ammonium, contribute the most to ambient PM levels. Vehicle exhaust particle emissions and wood smoke from residential wood combustion also contribute significantly. While road and other dust is a significant component of ambient PM_{10}, its contribution to $PM_{2.5}$ is minor.

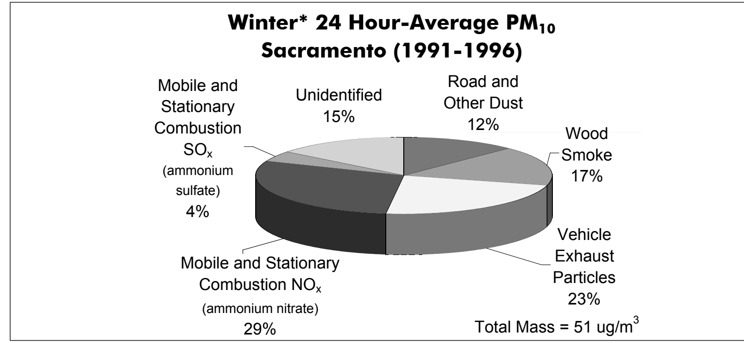

Figure 2-9 * Average of days with PM_{10} > 40 ug/m^3

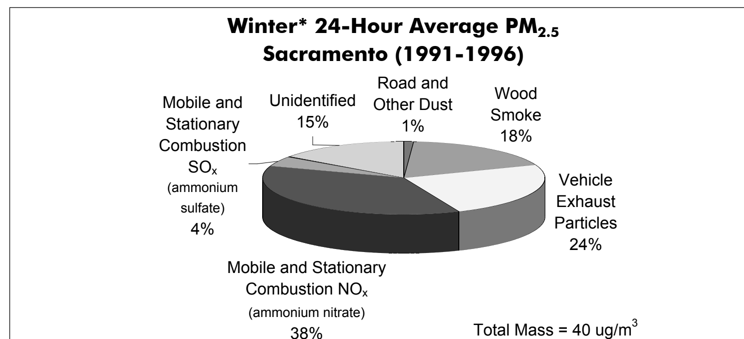

Figure 2-10 * Average of days with PM_{10} > 40 ug/m^3

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South Coast Air Basin

Data for Figures 2-11, 2-12, 2-13, and 2-14 are from the source apportionment analysis that the South Coast Air Quality Management District (SCAQMD) performed for the 1997 Air Quality Management Plan. SCAQMD collected samples during a one-year special study from January 1995 to February 1996, as part of the PM_{10} Technical Enhancement Program (SCAQMD, 1996).

On an annual basis, in Central Los Angeles, dust from roads and construction is the major contributor to ambient PM_{10}. This is not the case for the episode on November 17, 1995. In both cases, NO_x and SO_x emitted from mobile and stationary combustion sources, combined with ammonium, contribute significantly. Vehicle exhaust particles and emissions from other carbon sources also contribute to both annual and episodic ambient PM_{10} levels.

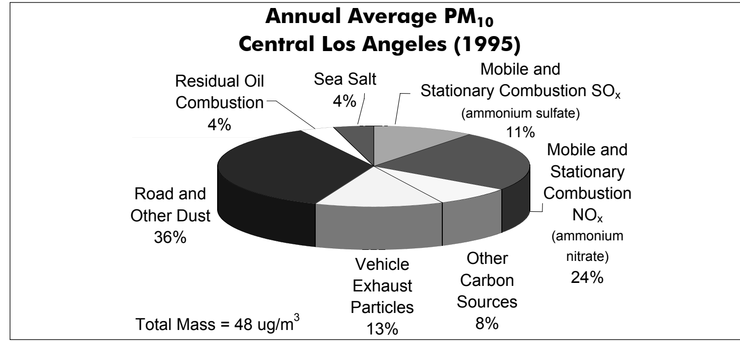

Figure 2-11

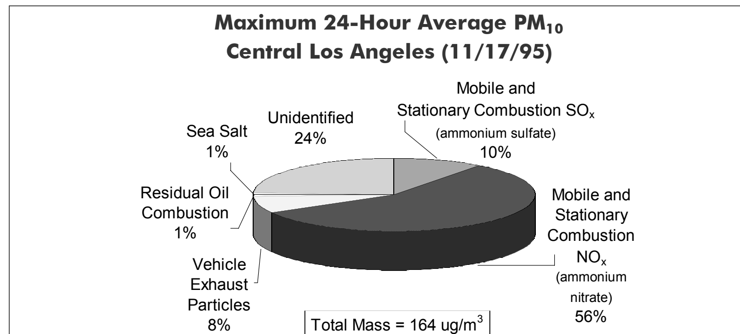

Figure 2-12

On an annual basis, in Rubidoux, dust from roads and construction is the major contributor to ambient PM_{10}. In contrast, dust was a minor contributor to the PM_{10} episode on November 17, 1995. In both cases, NO_x emitted from mobile and stationary combustion sources, combined with ammonium, contributes significantly. Vehicle exhaust particles and emissions from other carbon sources also contribute to both annual and episodic ambient PM_{10} levels.

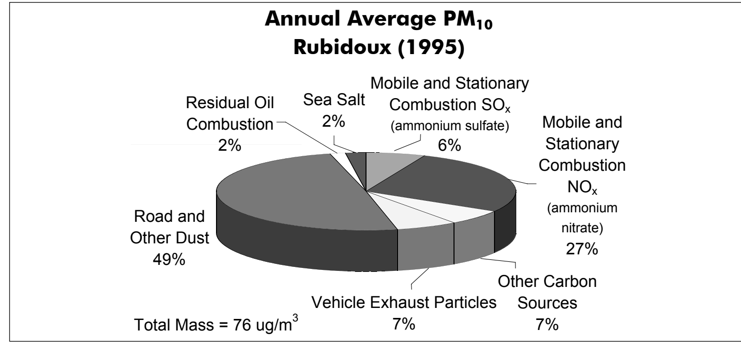

Figure 2-13

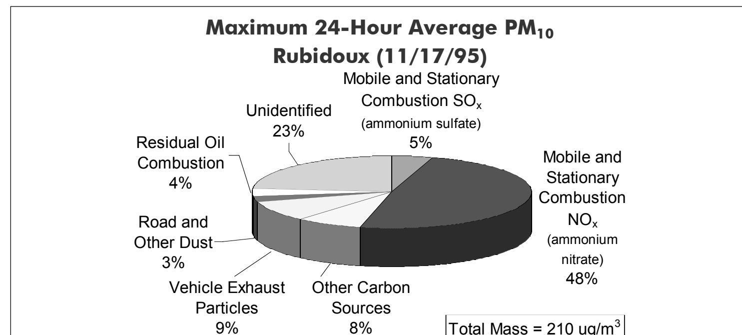

Figure 2-14

References:

Fairley, D. *Source Apportionment of Bay Area Particulates.* 1996; Personal communication.

Fairley, D. *$PM_{2.5}$ Source Apportionment for San Jose 4th Street.* 2001; Personal communication.

Magliano, K. L., Hughes, V. M., Chinkin, L. R., Coe, D. L., Haste, L. T., Kumar, N., Lurmann, F. W. *Spatial and Temporal Variations in PM_{10} and $PM_{2.5}$ Source Contributions and Comparison to Emissions During the 1995 Integrated Monitoring Study.* Atmospheric Environment 1999; 33:4757-4773.

Motallebi, N. *Wintertime PM_{10} and $PM_{2.5}$ Source Apportionment at Sacramento, California.* Journal of the Air & Waste Management Association 1999; 49:PM-25-34.

South Coast Air Quality Management District. "*Modeling and Attainment Demonstrations*" in 1997 Air Quality Management Plan, Diamond Bar, California. 1996.

Carbon Monoxide

2001 Statewide Emission Inventory - Carbon Monoxide by Category

Carbon monoxide (CO) gas is formed as the result of incomplete combustion of fuels and waste materials such as gasoline, diesel fuel, wood, and agricultural debris. Mobile sources generate about 84 percent of the statewide CO emissions. Diesel-powered, on-road vehicles are small CO contributors. Stationary and area-wide sources of CO are the same types of fuel combustion sources that also generate NO_x. The stationary source contribution to statewide CO is small, due in part to widespread use of natural gas as a fuel and the presence of combustion controls.

CO Emissions (annual average)		
Emissions Source	**tons/day**	**Percent**
Stationary Sources	362	2%
Area-wide Sources	2309	14%
On-Road Mobile	11636	68%
Gasoline Vehicles	11507	67%
Diesel Vehicles	129	1%
Other Mobile	2759	16%
Total Statewide	*17065*	*100%*

Table 2-15

Carbon Monoxide - 2000 Air Quality

The State and national carbon monoxide standards are now attained in most areas of California. The requirements for cleaner vehicles and fuels have been primarily responsible for the reductions in CO, despite significant increases in population and the number of vehicle miles traveled each day. However, there are still two problem areas: a limited portion of Los Angeles County and the city of Calexico in Imperial County. The CO problem in Calexico is unique in that this area shares a border with Mexico, and there is a high likelihood that cross-border traffic contributes to the local CO problem. More study is needed to determine the most effective control strategy for this area.

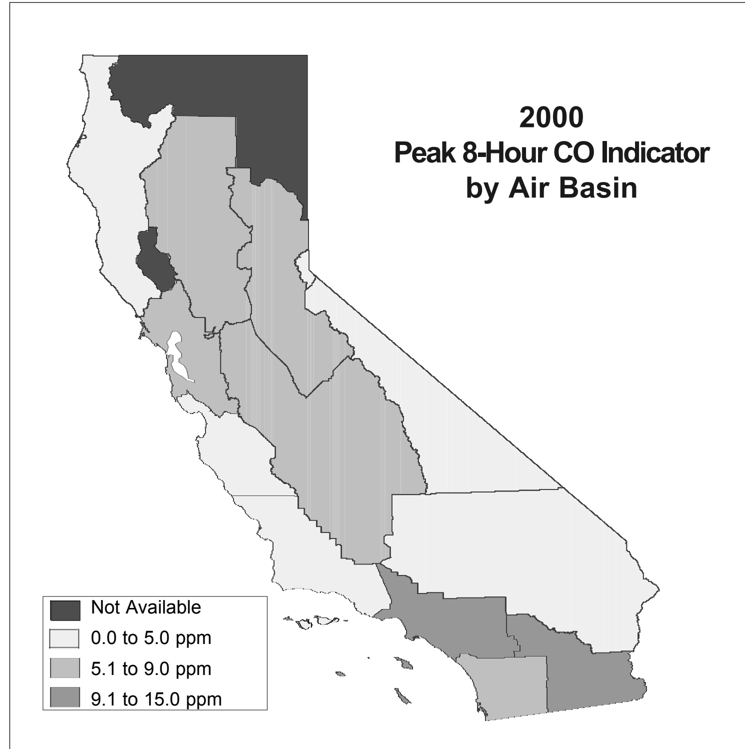

Figure 2-15

Carbon Monoxide - 2000 Air Quality Tables

Maximum Peak 8-Hour Indicator by Air Basin

AIR BASIN	2000 Maximum Peak 8-Hour Indicator in parts per million	Number of Days in 2000 above State 8-Hour Standard	Number of Days in 2000 above National 8-Hour Standard
Great Basin Valleys Air Basin	2.9	0	0
Lake County Air Basin	Incomplete Data	Incomplete Data	Incomplete Data
Lake Tahoe Air Basin	2.1	0	0
Mojave Desert Air Basin	4.6	0	0
Mountain Counties Air Basin	5.7	0	0
North Central Coast Air Basin	1.6	0	0
North Coast Air Basin	3.4	0	0
Northeast Plateau Air Basin	Incomplete Data	Incomplete Data	Incomplete Data
Sacramento Valley Air Basin	7.0	0	0
Salton Sea Air Basin	14.8	7	6
San Diego Air Basin	5.3	0	0
San Francisco Bay Area Air Basin	7.1	0	0
San Joaquin Valley Air Basin	8.3	0	0
South Central Coast Air Basin	4.7	0	0
South Coast Air Basin	12.6	6	3

Table 2-16

Sites with 8-Hour Peak Indicator Values above the State CO Standard

Salton Sea Air Basin

- Calexico-Ethel Street
- Calexico-East

South Coast Air Basin

- Lynwood

Sites with 8-hour peak indicator values above the level of the State CO standard during 2000. Sites in each air basin are listed in descending order of their 8-hour peak indicator value. If an air basin is not listed, the peak indicator values at sites in that air basin were not above the State CO standards.

Table 2-17

Chapter 3

Statewide Trends and Forecasts -- Criteria Pollutants

Introduction
Emission Trends and Forecasts

The most current emissions data available are from 2001. Any data prior to this year are derived from historical emissions data. Future year data are forecasted from the 2001 base year and control measures reported through September 2001. Forecasts take into account emissions data, projected growth rates, and future control measures to calculate emissions in future years.

Statewide Emissions (tons/day, annual average)								
	1975	1980	1985	1990	1995	2000	2005	2010
NO_x	4762	5050	4939	4901	4133	3523	2962	2462
ROG	6408	6210	5737	4595	3755	3117	2592	2331
PM_{10}	1813	1983	1985	2254	2221	2313	2447	2601
CO	38285	36315	34625	29631	22876	17937	14052	11423

Table 3-1

On a statewide basis, emissions of NO_x increased slightly between 1975 and 1985, but are declining between 1985 and 2010. Emissions of ROG are decreasing steadily between 1975 and 2010. In addition to being ozone precursors, both NO_x and ROG are secondary contributors to PM_{10}. In contrast to NO_x and ROG, direct PM_{10} emissions are increasing from 1995 to 2010, primarily due to increases in the number of vehicle miles traveled (VMT) on paved and unpaved roads. These VMT estimates are reported by Councils of Governments and local and regional air pollution control agencies. As a percent of area-wide sources, paved road dust accounts for 15 percent of the total in 1975, rising to 19 percent in 1995, and remaining steady at that level until 2010. As a percent of area-wide sources, unpaved road dust accounts for 20 percent of the total in 1975, rising to 32 percent of the total in 1995, and remaining steady at that level until 2010.

Emissions of CO have decreased since 1985. The recent decrease in NO_x, ROG, and CO is occurring even with increases of VMT and population levels.

Statewide Population and VMT

Airborne pollutants result in large part from human activities, and growth generally has a negative impact on air quality. California is fortunate in that it boasts the world's most progressive emission controls. These controls have resulted in significant air quality improvements, despite substantial growth.

During 1981 through 2000, statewide peak 1-hour ozone values decreased 47 percent, and peak 8-hour carbon monoxide values dropped 39 percent. These air quality improvements occurred at the same time the State's population increased 39 percent and the average daily number of vehicle miles traveled (VMT) increased 91 percent. Ambient annual geometric mean PM_{10} values in the non-desert areas also show improvement -- a 33 percent decrease from 1988 to 2000. While the air quality improvements are impressive, additional emission controls will be needed to offset future growth.

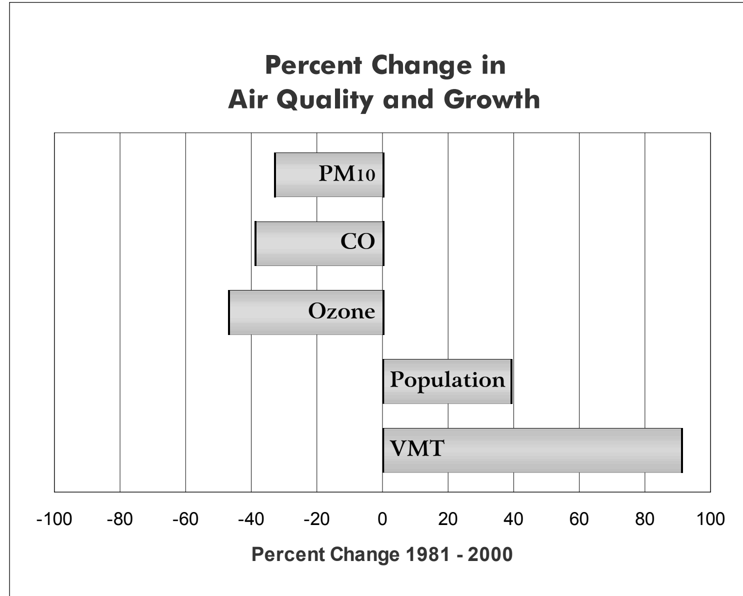

Figure 3-1

Ozone

Emission Trends and Forecasts - Ozone Precursors

NO_x Emission Trends and Forecasts

NO_x emission standards for on-road motor vehicles were introduced in 1971 and followed in later years by the implementation of more stringent standards and the introduction of three-way catalysts. NO_x emissions from on-road motor vehicles have declined by over 30 percent from 1990 to 2000, and NO_x emissions are projected to decrease by an additional 45 percent between 2000 and 2010. This has occurred as vehicles meeting more stringent emission standards enter the fleet, and all vehicles use cleaner burning gasoline and diesel fuel or alternative fuels. Stationary source NO_x emissions dropped by over 40 percent between 1980 and 1995. This decrease has been largely due to a switch from fuel oil to natural gas and the implementation of combustion controls such as low-NO_x burners for boilers and catalytic converters for both external and internal combustion stationary sources. State Implementation Plan (SIP) and conformity inventory forecasts may differ from the forecasts presented in this almanac. For additional information on these forecasts, please refer to the ARB SIP web page at *www.arb.ca.gov/sip/siprev1.htm*.

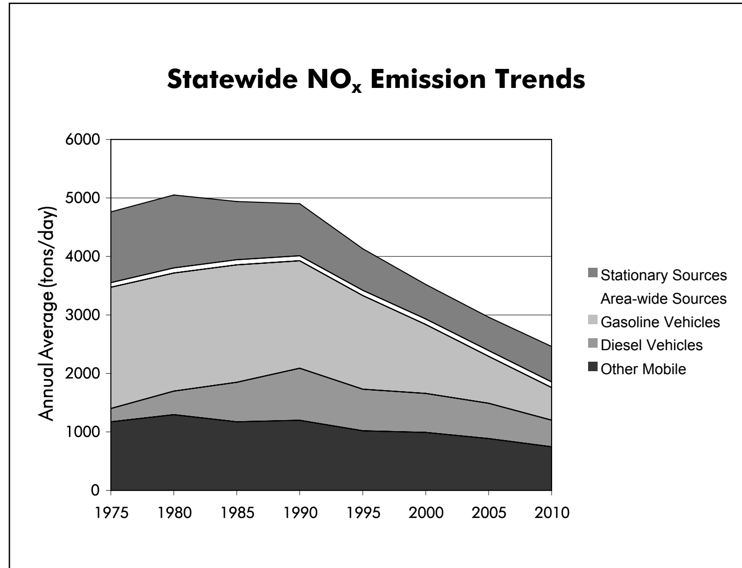

Figure 3-2

ROG Emission Trends and Forecasts

ROG emissions in California are projected to decrease by over 60 percent between 1975 and 2010, largely as a result of the State's on-road motor vehicle emission control program. This includes the use of improved evaporative emission control systems, computerized fuel injection, and engine management systems to meet increasingly stringent California emission standards, cleaner gasoline, and the Smog Check program. ROG emissions from other mobile sources are projected to decline between 1995 and 2010 as more stringent emission standards are adopted and implemented. Substantial reductions have also been obtained for area-wide sources through the vapor recovery program for service stations, bulk plants, and other fuel distribution operations. There are also on-going programs to reduce overall solvent ROG emissions from coatings, consumer products, cleaning and degreasing solvents, and other substances used within California. Again, State Implementation Plan (SIP) and conformity inventory forecasts may differ from the forecasts presented in this almanac. For additional information on these forecasts, please refer to the ARB SIP web page at *www.arb.ca.gov/sip/siprev1.htm*.

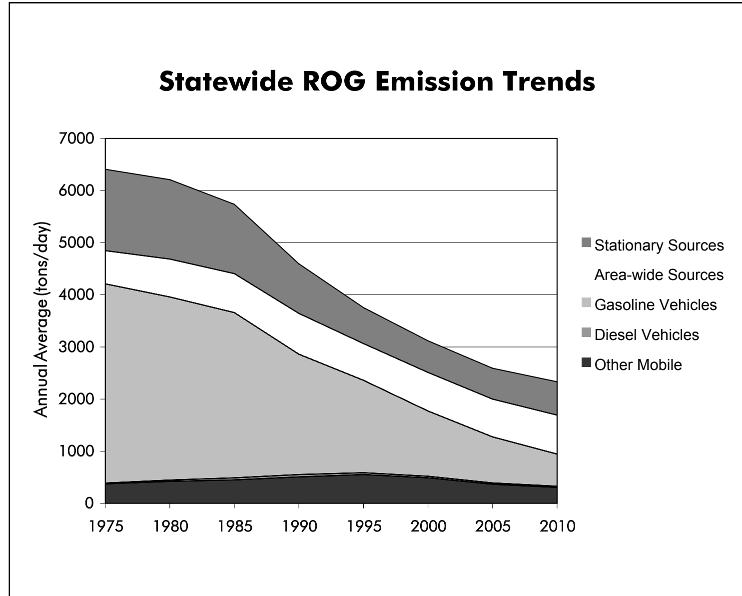

Figure 3-3

Emission Trends and Forecasts - Ozone Precursors

NOx Emission Trends (tons/day, annual average)								
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
All Sources	***4762***	***5050***	***4939***	***4901***	***4133***	***3523***	***2962***	***2462***
Stationary Sources	1211	1246	994	889	711	592	571	606
Area-wide Sources	78	88	88	87	89	94	98	97
On-Road Mobile	2300	2422	2684	2727	2312	1846	1408	1012
Gasoline Vehicles	2074	2020	2007	1836	1602	1179	803	559
Diesel Vehicles	226	402	678	890	710	667	604	453
Other Mobile	1173	1294	1172	1199	1020	991	886	747

Table 3-2

ROG Emission Trends (tons/day, annual average)								
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
All Sources	***6408***	***6210***	***5737***	***4595***	***3755***	***3117***	***2592***	***2331***
Stationary Sources	1561	1524	1331	951	689	607	593	640
Area-wide Sources	637	728	749	784	706	740	725	747
On-Road Mobile	3837	3537	3209	2353	1809	1282	910	638
Gasoline Vehicles	3823	3512	3168	2308	1774	1252	883	616
Diesel Vehicles	15	26	41	45	35	30	27	22
Other Mobile	372	420	448	507	551	488	364	306

Statewide Air Quality - Ozone

Air quality as it relates to ozone has improved greatly in all areas of California over the last 20 years, despite significant growth. The statewide trend, which reflects values for the South Coast Air Basin, shows the maximum peak 1-hour indicator declined 47 percent from 1981 to 2000. During this same time period, the population grew by 43 percent and the number of vehicle miles traveled each day was up more than 90 percent. Motor vehicles are the largest source category of ozone precursor emissions, and reducing their emissions will continue to be the cornerstone of California's ozone control efforts. New vehicles must meet the ARB's low emission vehicle standards, which equate to about 95 percent fewer smog-forming emissions than vehicles produced in the 1970s. However, increases in population and driving are partially offsetting the benefits of cleaner vehicles. In addition to motor vehicle controls, the ARB is establishing controls for other sources of ozone precursor emissions, such as consumer products. The ARB and other agencies are also looking at new and more efficient ways of doing business and implementing incentives to improve air quality.

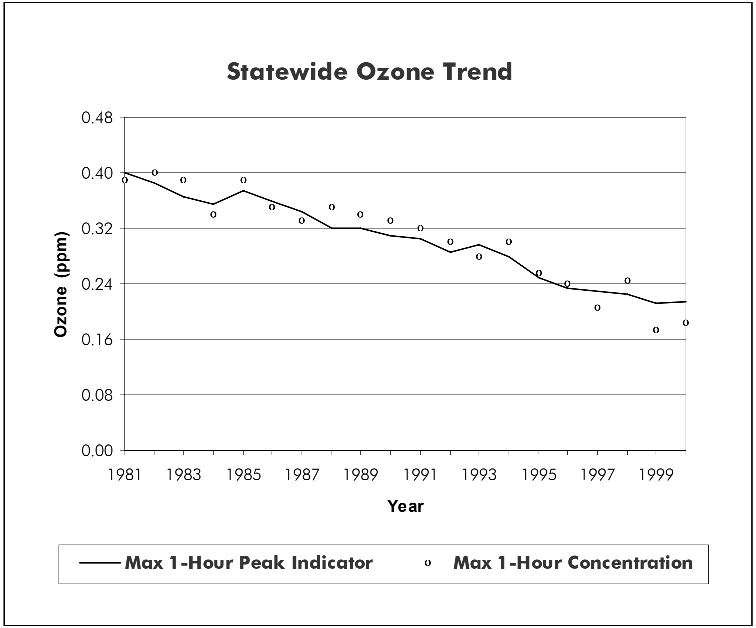

Figure 3-4

Population-Weighted Exposures Over the State Ozone Standard

There are a number of ways to look at how ozone levels have changed over the years. Though simple indicators are most commonly used, complex indicators can offer additional insight concerning air quality. One such indicator is the *population-weighted exposure* indicator. An "exposure" occurs when a person experiences a one-hour ozone concentration outdoors that is higher than 0.09 ppm, the level of the State standard. The population-weighted exposure indicator considers both the level and the duration of ozone concentrations above the State standard. The annual exposure is the sum of all the hourly exposures during the year and presents the result as an average per exposed person.

In contrast to the peak indicator, which provides an indication of the potential for acute adverse health impacts, the population-weighted exposure provides an indication of the potential for chronic adverse health impacts. For the purposes of computing the exposures in this almanac, individuals are presumed to have been exposed to the concentrations measured by the ambient air quality monitoring network. However, daily activity patterns (for example, being inside a building or exercising outdoors) may diminish or increase exposures to some outdoor concentrations that exceed the State standard. While many indicators characterize air quality at an individual monitoring location, the exposure indicator provides an integrated regional perspective. For each hour, the calculations simultaneously consider ozone data from all of the monitors in a region. People living in areas where ozone exceeds the standard are then included in the population-weighted exposure for that hour.

The examples below show two simple exposure calculations. First, a measured ozone concentration of 0.11 ppm for one hour represents an exposure of 0.02 ppm-hours above the State ozone standard of 0.09 ppm:

$$(0.11 \text{ ppm} - 0.09 \text{ ppm}) \times 1 \text{ hour} = 0.02 \text{ ppm-hours}$$

Second, a measured concentration of 0.10 ppm for two hours also equals an exposure of 0.02 ppm-hours:

$$(0.10 \text{ ppm} - 0.09 \text{ ppm}) \times 2 \text{ hours} = 0.02 \text{ ppm-hours}$$

In contrast to these examples, when the concentration is at or below the level of the State standard (0.09 ppm), the exposure is zero. These "zero" exposures are not included in the exposure calculations in this edition of the almanac because including the zero exposures dilutes the real impact of the ozone concentrations that are above the State standard and are, therefore, adversely affecting public health. In all cases, an exposure calculation that excludes the zero values will be higher than one incorporating concentrations at or below the level of the standard (areas of zero exposure).

The population-weighted exposures in Table 3-3 are listed for each year, from 1980 through 2000, for the five most populated areas of California: South Coast Air Basin, San Francisco Bay Area Air Basin, San Joaquin Valley Air Basin, San Diego Air Basin, and Sacramento Metropolitan Area. While these areas do not encompass all of California's ozone nonattainment areas, they do include the major urban areas where the majority of the State's population lives.

The values in Table 3-3 differ from the values reported in the previous edition of the almanac for two reasons. First, the air quality data are now presented in parts per million rather than parts per hundred million to be consistent with the units in which the State standard is expressed. This change caused all results to decrease by a factor of 100. Second, as noted earlier, only "exposed" people (people living in areas with concentrations above the State standard) now contribute to the hourly characterization of the average exposure. Previously, all people in the region, even those with "zero" exposure contributed to the exposure calculation. This change caused the exposure results to increase by a factor of 1.7 to 50, depending on the region and the year. Despite these changes, the time trends for the two types of exposure calculations are strongly correlated. In addition to the exposure values, Table 3-3 also lists the percent of the total population represented in the exposure value. The percent value reflects the percent of the total population in the area that was exposed to an ozone concentration above the level of the State standard for at least one hour during the year. Because the exposure result is an average, it may not accurately portray the exposure of any particular individual or subarea. Some people in the region experience higher exposure while others experience lower exposure. Nevertheless, this method provides a reasonable approach for comparing exposures among various regions and assessing trends in exposure reductions

The calculations for the exposure indicators are based on all concentrations measured in the area that satisfy the specified data requirements and use census information for 1990. General details about the computational procedure can be found in the ARB publication entitled: "*Guidance for Using Air Quality-Related Indicators in Reporting Progress in Attaining the State Ambient Air Quality Standards*" (September 1993).

Ozone Exposures Over the State Standard: Population-Weighted (ppm-hours / person)																					
	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
South Coast Air Basin																					
Exposure	44.92	40.34	31.94	40.60	35.97	36.89	34.68	30.18	33.24	29.21	21.88	22.24	21.96	17.82	18.77	13.19	10.59	6.46	8.88	3.27	3.92
% Pop. Represented*	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	97%	100%	92%	99%	99%	100%
San Francisco Bay Area Air Basin																					
Exposure	2.33	1.67	0.81	2.28	2.28	1.45	0.85	1.80	1.24	0.68	0.47	0.48	0.54	0.41	0.26	1.06	1.02	0.10	0.95	0.62	0.32
% Pop. Represented	100%	65%	57%	97%	100%	73%	46%	72%	73%	54%	41%	45%	50%	72%	40%	81%	60%	48%	54%	64%	23%
San Joaquin Valley Air Basin																					
Exposure	8.57	8.17	8.22	5.95	7.59	8.45	10.66	11.07	9.93	7.64	5.72	6.49	5.89	6.41	6.48	6.12	6.90	3.73	6.63	4.46	4.64
% Pop. Represented	93%	96%	98%	97%	97%	97%	94%	98%	99%	96%	96%	96%	96%	99%	99%	99%	99%	99%	99%	99%	99%
San Diego Air Basin																					
Exposure	8.30	10.88	7.22	10.04	6.97	8.27	5.24	5.65	7.44	7.34	6.50	3.97	3.34	2.75	2.28	2.41	1.19	0.83	1.91	0.60	0.59
% Pop. Represented	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	79%	100%	98%	100%	84%	70%	74%
Sacramento Metropolitan Area																					
Exposure	3.44	3.68	2.28	2.34	3.12	2.88	2.57	3.20	4.67	2.19	2.06	2.49	2.55	1.18	1.92	2.35	1.95	0.56	2.01	1.49	1.19
% Pop. Represented	97%	99%	96%	91%	97%	93%	91%	97%	97%	100%	97%	96%	100%	98%	94%	100%	100%	98%	98%	100%	97%

* *% Population Represented* is the percent of the total population in the area exposed to an ozone concentration above the level of the State standard for at least one hour during the year.

Table 3-3

Ozone Transport

Since 1989, the ARB staff has evaluated the impacts of the transport of ozone and ozone precursor emissions from upwind areas to the ozone concentrations in downwind areas. These 12 years with analyses demonstrate that the air basin boundaries are not true boundaries of air masses. All urban areas are upwind contributors to their downwind neighbors with the exception of San Diego. Figure 3-5 shows the flow of pollutants throughout the State. The ozone problem in some rural areas is caused almost solely by transported pollutants. These areas, although designated as nonattainment, are not required to adopt an air quality plan because local control strategies in these areas would not be effective in reducing ozone concentrations. However, these areas are subject to many statewide control strategies, such as cleaner fuels and low emission vehicles. More detailed information about ozone transport is available on the web at: *www.arb.ca.gov/aqd/transport/transport.htm*.

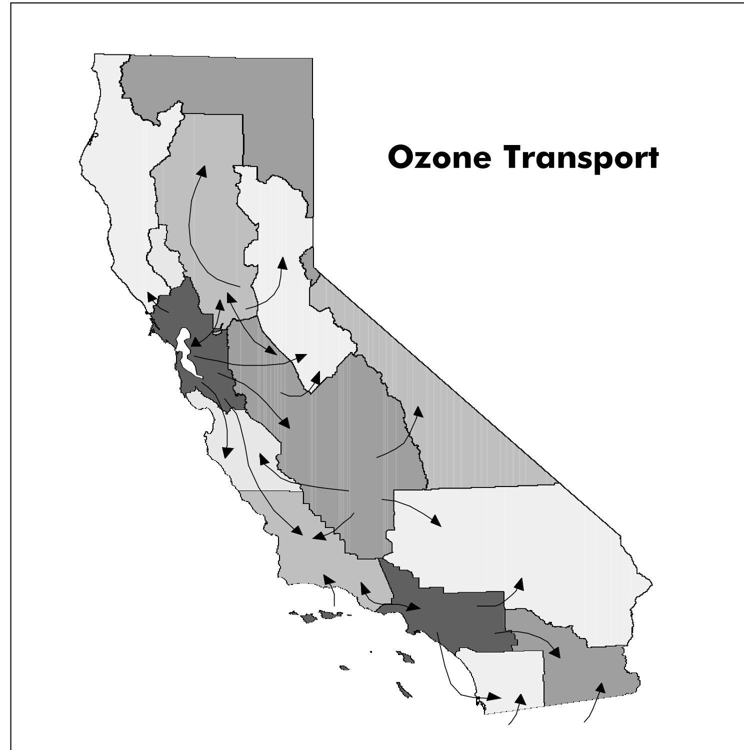

Figure 3-5

Particulate Matter (PM_{10})

Emission Trends and Forecasts - PM_{10}

The upward trend in statewide directly emitted PM_{10} emissions is primarily due to an increase in emissions from area-wide sources. This includes an increase in emissions of unpaved and paved road dust due to increases in vehicle miles traveled (VMT) over these roads. Exhaust emissions from diesel vehicles dropped by 55 percent from 1990 to 2000 due to more stringent emissions standards and the introduction of cleaner burning diesel fuel. PM_{10} emissions from stationary sources are expected to increase slightly in the future due to industrial growth.

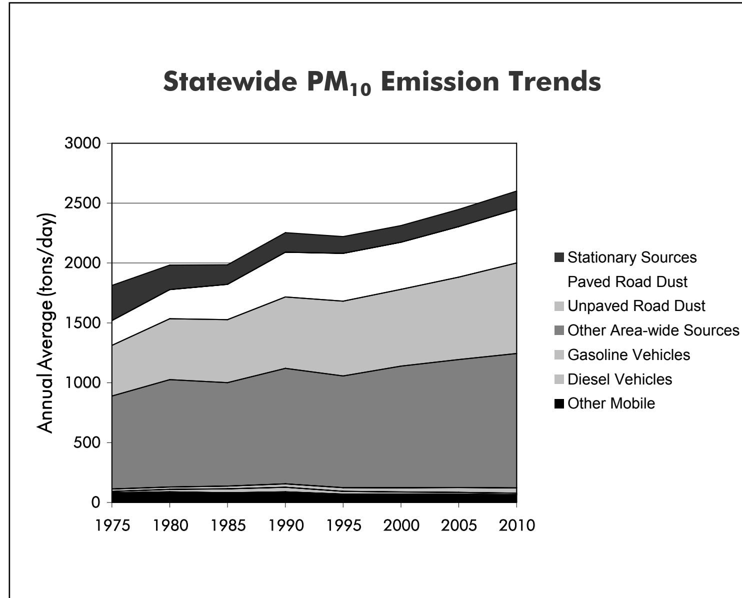

Figure 3-6

Emission Trends and Forecasts - PM_{10}

PM10 Emission Trends (tons/day, annual average)								
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
All Sources	***1813***	***1983***	***1985***	***2254***	***2221***	***2313***	***2447***	***2601***
Stationary Sources	294	205	164	163	140	140	143	152
Area-wide Sources	1406	1649	1684	1935	1956	2050	2180	2328
Paved Road Dust	207	243	295	374	399	393	422	449
Unpaved Road Dust	423	509	526	596	625	642	688	756
Other Area-wide Sources	776	897	864	965	932	1016	1069	1123
On-Road Mobile	32	40	56	66	54	53	54	56
Gasoline Vehicles	21	20	23	28	31	35	40	44
Diesel Vehicles	11	20	33	38	23	17	14	12
Other Mobile	81	89	81	89	70	70	70	65

Table 3-4

Statewide Air Quality - PM_{10}

In contrast to ozone and carbon monoxide, PM_{10} concentrations do not relate as well to growth in population or vehicle usage, and high PM_{10} concentrations do not always occur in high population areas. Activities that contribute directly to high PM_{10} include wood burning, agricultural activities, and driving on unpaved roads. In addition, emissions from stationary sources and motor vehicles form secondary particles that contribute to PM_{10} in some areas. Figure 3-7 shows the maximum statewide annual geometric mean PM_{10} concentrations. The trend line reflects the South Coast Air Basin. The line shows a fairly steady decline over the period, reflecting an overall decrease of about 33 percent. However, there is a great deal of variability, especially during the latter years. Much of this variability may be due to meteorology rather than changes in emissions. Several more years of data are needed before making any judgement about the direction of the trend. Currently, over 99 percent of Californians breathe air that violates the State PM_{10} standards during at least part of the year. As a result, particulate matter is commanding greater attention, and much effort will be needed to attain the standards.

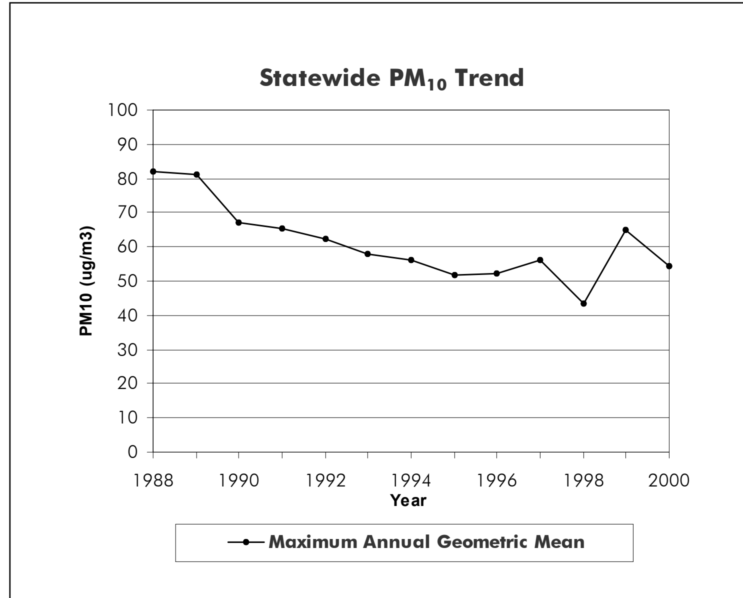

Figure 3-7

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Carbon Monoxide

Emission Trends and Forecasts - Carbon Monoxide

Since 1975, even though motor vehicle miles traveled (VMT) have continued to climb, the adoption of more stringent motor vehicle emissions standards has dropped statewide CO emissions from on-road motor vehicles by over 60 percent in 2000. With continued vehicle fleet turnover to cleaner vehicles including super ultra low emitting vehicles (SULEV's) and electric vehicles (EV's), and the incorporation of cleaner burning fuels, CO emissions are forecast to continue decreasing through the year 2010. CO emissions from other mobile sources are also projected to decrease through 2010 as more stringent emissions standards are implemented. CO emissions from area-wide sources are expected to increase slightly due to increased waste burning and additional residential fuel combustion resulting from population increases.

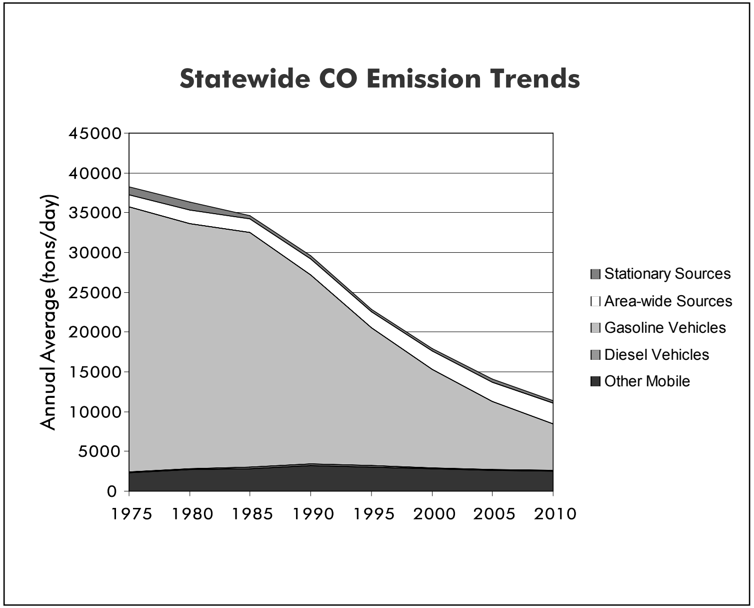

Figure 3-8

Emission Trends and Forecasts - Carbon Monoxide

CO Emission Trends (tons/day, annual average)								
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
All Sources	***38285***	***36315***	***34625***	***29631***	***22876***	***17937***	***14052***	***11423***
Stationary Sources	1087	975	424	474	359	349	373	392
Area-wide Sources	1507	1667	1703	1935	1957	2274	2412	2565
On-Road Mobile	33352	31002	29692	24036	17503	12530	8633	5964
Gasoline Vehicles	33295	30900	29518	23829	17335	12393	8511	5861
Diesel Vehicles	57	103	175	206	167	137	122	102
Other Mobile	2339	2670	2806	3186	3057	2785	2634	2502

Table 3-5

Statewide Air Quality - Carbon Monoxide

Similar to ozone, carbon monoxide concentrations in all areas of California have decreased substantially over the last 20 years, despite significant growth. Statewide, the maximum peak 8-hour indicator declined about 39 percent from 1981 to 2000. Currently, the State and national carbon monoxide standards are violated in only two areas: the South Coast Air Basin portion of Los Angeles County and the city of Calexico, in Imperial County. The introduction of cleaner fuels has helped bring the rest of the State into attainment. While cleaner fuels will have a continuing impact on carbon monoxide levels, additional emission reductions will be needed in the future to keep pace with increases in population and vehicle usage. These reductions will come from continued fleet turnover, expanded use of low emission vehicles, and measures to promote less polluting modes of transportation. In addition, the introduction of zero emission vehicles will play an increasingly important role in the coming years.

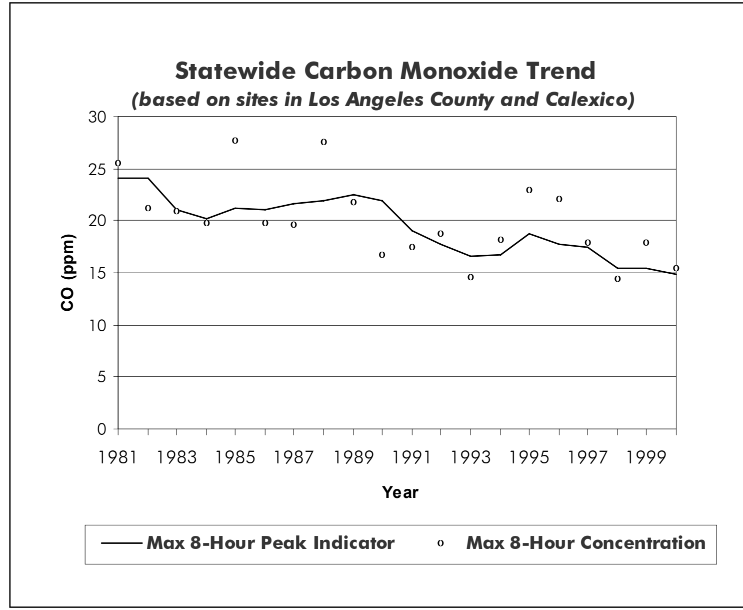

Figure 3-9

Success Stories

Statewide Air Quality - Lead

The decrease in lead emissions and ambient lead concentrations over the past 25 years is California's most dramatic success story. The rapid decrease in lead concentrations can be attributed primarily to phasing out the lead in gasoline. This phase-out began during the 1970s, and subsequent ARB regulations have virtually eliminated all lead from the gasoline now sold in California. All areas of the State are currently designated as attainment for the State lead standard (the United States Environmental Protection Agency does not designate areas for the national lead standard). Although the ambient lead standards are no longer violated, lead emissions from stationary sources still pose "hot spot" problems in some areas. As a result, the ARB identified lead as a toxic air contaminant in 1997.

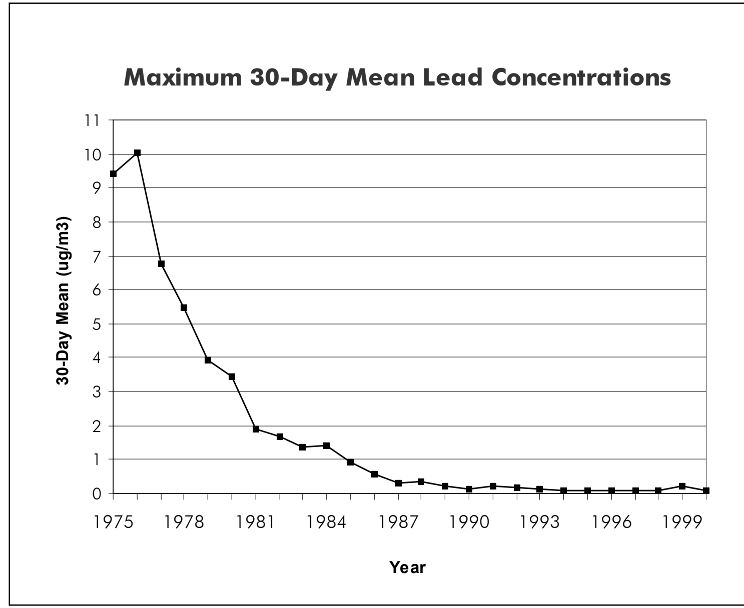

Figure 3-10

Nitrogen Dioxide

Emission Trends and Forecasts - Oxides of Nitrogen

Nitrogen dioxide (NO_2) is a colorless, tasteless gas that can cause lung damage, chronic lung disease, and respiratory infections. Nitrogen dioxide is a component of NO_x, and its presence in the atmosphere can be correlated with emissions of NO_x. Statewide emissions of NO_x are projected to decrease by almost 50 percent from 1985 to 2010 as a result of more stringent emissions standards for stationary source combustion and motor vehicles, and cleaner burning fuels. The introduction of lower emitting vehicles will continue to further reduce NO_x emissions.

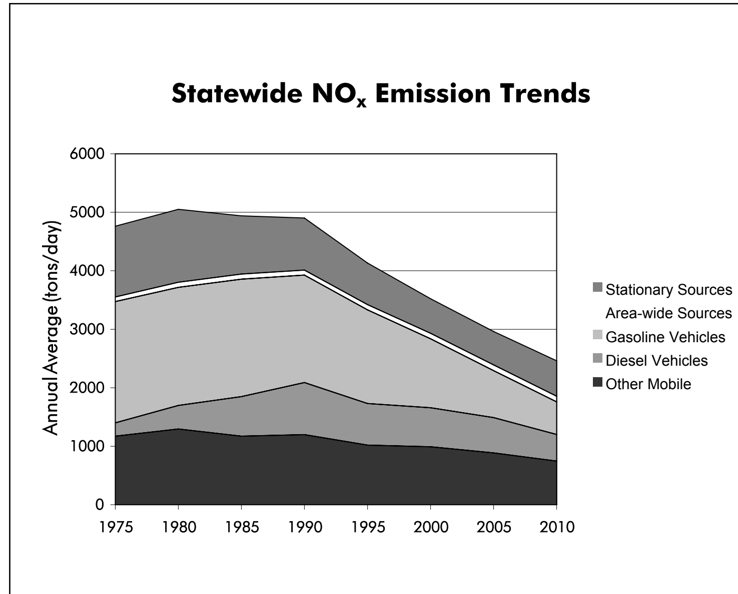

Figure 3-11

Emission Trends and Forecasts - Oxides of Nitrogen

NOx Emission Trends (tons/day, annual average)								
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
All Sources	***4762***	***5050***	***4939***	***4901***	***4133***	***3523***	***2962***	***2462***
Stationary Sources	1211	1246	994	889	711	592	571	606
Area-wide Sources	78	88	88	87	89	94	98	97
On-Road Mobile	2300	2422	2684	2727	2312	1846	1408	1012
Gasoline Vehicles	2074	2020	2007	1836	1602	1179	803	559
Diesel Vehicles	226	402	678	890	710	667	604	453
Other Mobile	1173	1294	1172	1199	1020	991	886	747

Table 3-6

Statewide Air Quality - Nitrogen Dioxide

Oxides of nitrogen (NO_x) emissions are a by-product of combustion from both mobile and stationary sources, and they contribute to ambient nitrogen dioxide (NO_2) concentrations. Since 1975, maximum NO_2 concentrations have decreased more than 50 percent, due primarily to the implementation of tighter controls on both mobile and stationary sources. Although many of these controls were implemented to reduce ozone, they also benefited NO_2. All areas of California are currently designated as attainment for the State standard and unclassified/attainment for the national nitrogen dioxide standard. Projections show NO_x emissions will continue to decline, thereby assuring continued attainment.

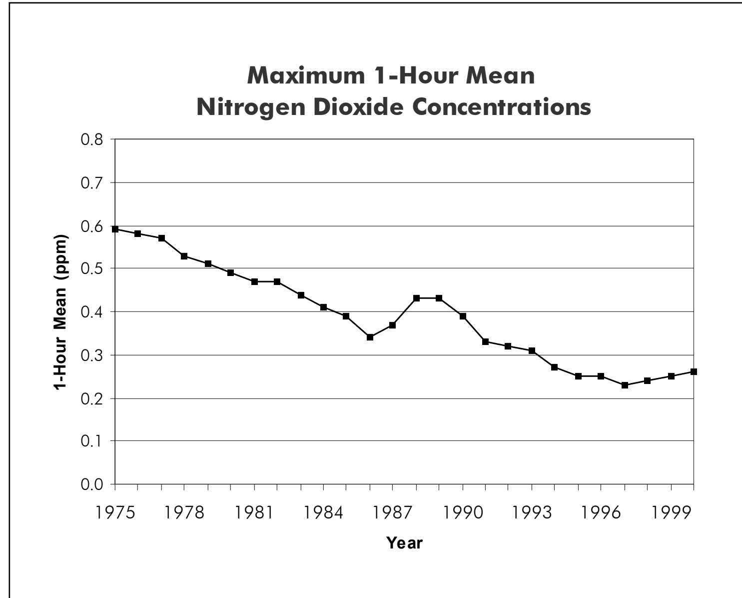

Figure 3-12

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Sulfur Dioxide

Emission Trends and Forecasts - Oxides of Sulfur

SO_x (oxides of sulfur) is a group of compounds of sulfur and oxygen. A major constituent of SO_x is sulfur dioxide (SO_2). Emissions of SO_x declined tremendously in California between 1975 and 2000. Emissions in 2000 are about 75 percent less than emissions in 1975. Sulfur dioxide emissions from stationary sources were decreased between 1975 and 2000 due to improved industrial source controls and switching from fuel oil to natural gas for electric generation and industrial boilers. The SO_x emissions from both gasoline and diesel vehicle exhaust have also decreased due to lower sulfur content in the fuel.

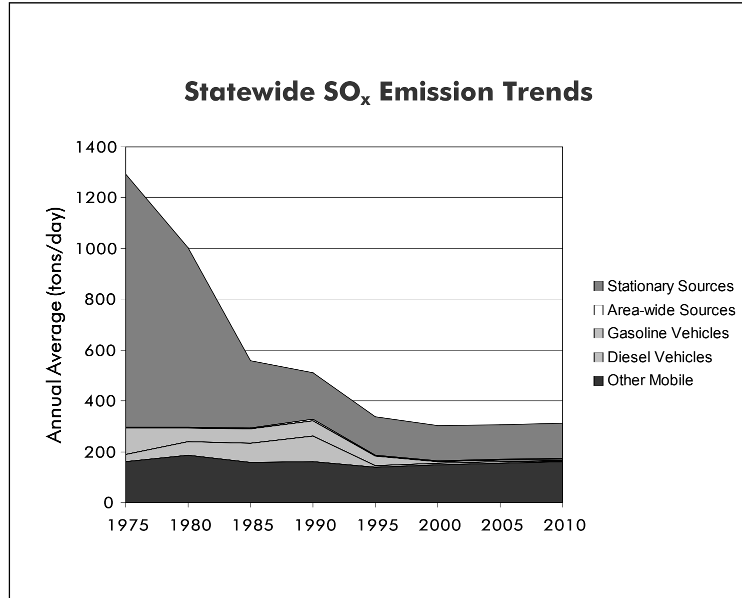

Figure 3-13

Emission Trends and Forecasts - Oxides of Sulfur

SO_x Emission Trends (tons/day, annual average)								
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
All Sources	**1292**	**1002**	**558**	**512**	**337**	**303**	**306**	**312**
Stationary Sources	995	705	264	185	151	139	134	139
Area-wide Sources	3	4	4	5	5	5	5	6
On-Road Mobile	133	107	134	162	43	12	11	5
Gasoline Vehicles	104	53	57	61	36	5	4	4
Diesel Vehicles	29	53	77	101	7	7	7	1
Other Mobile	161	187	156	160	139	148	155	162

Table 3-7

Statewide Air Quality - Sulfur Dioxide

Similar to oxides of nitrogen, oxides of sulfur (SO_x) emissions come from both mobile and stationary sources. These SO_x emissions contribute to ambient sulfur dioxide (SO_2) concentrations. While SO_2 poses significant problems in other parts of the nation, SO_x emissions in California have been reduced sufficiently over the last 25 years so that all areas of California now attain the State standards for sulfur dioxide. Many of the major urban areas are also designated as attainment for the national sulfur dioxide standards. However, most of California is designated as unclassified. With current and anticipated SO_x emission control measures, all areas of the State are expected to remain attainment for SO_2.

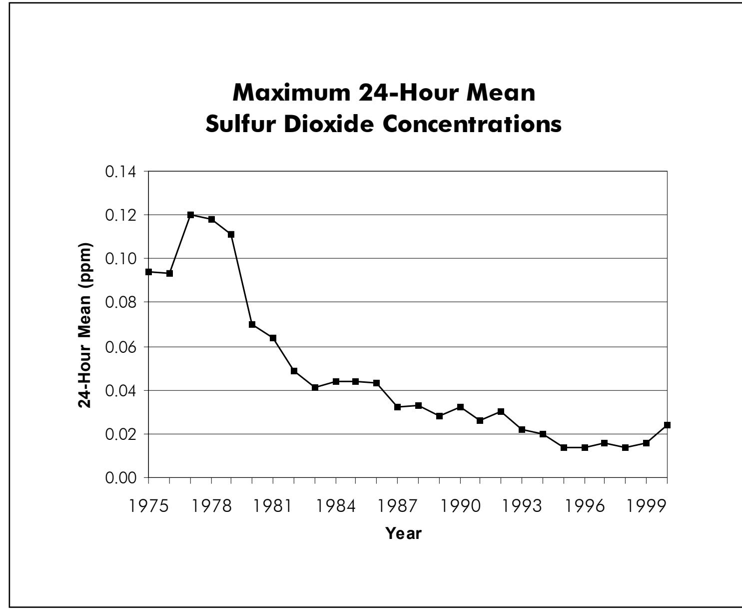

Figure 3-14

Chapter 4

Air Basin Trends and Forecasts -- Criteria Pollutants

Introduction

This chapter includes information about criteria pollutant emission and air quality trends in California's five most populated air basins: the South Coast Air Basin, the San Francisco Bay Area Air Basin, the San Joaquin Valley Air Basin, the San Diego Air Basin, and the Sacramento Valley Air Basin. The primary focus of the chapter is ozone, PM_{10}, and carbon monoxide. However, information on nitrogen dioxide is included for the South Coast Air Basin and San Diego Air Basin because these areas were once designated as nonattainment for NO_2. Both of these areas now attain the nitrogen dioxide standards.

The introduction section for each air basin includes a description of the area, a discussion of the emission trends and forecasts for each pollutant, and a description of the changes in population and the number of vehicle miles traveled each day in the air basin. This introduction is followed by more detailed discussions of trends and forecasts in emissions by major source categories and trends in ambient air quality, organized by pollutant.

South Coast Air Basin

Introduction - Area Description

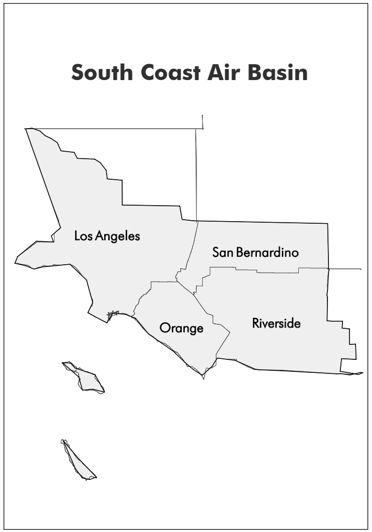

Figure 4-1

The South Coast Air Basin is California's largest metropolitan region. The area includes the southern two-thirds of Los Angeles County, all of Orange County, and the western urbanized portions of Riverside and San Bernardino counties. It covers a total of 6,729 square miles, is home to more than 40 percent of California's population, and generates about 30 percent of the State's total criteria pollutant emissions. The South Coast Air Basin generally forms a lowland plain, bounded by the Pacific Ocean on the west and by mountains on the other three sides. In terms of air pollution potential, there are probably few areas less suited for urban development. The warm sunny weather associated with a persistent high pressure system is conducive to the formation of ozone, commonly referred to as "smog." The problem is further aggravated by the surrounding mountains, frequent low inversion heights, and stagnant air conditions. All of these factors act together to trap pollutants in the air basin. Pollutant concentrations in parts of the South Coast Air Basin are among the highest in California. As a result, controlling the contributing emission sources poses a great challenge to State and local air pollution control agencies.

South Coast Air Basin

Emission Trends and Forecasts

Overall, since 1975 the emission levels for CO and the ozone precursors NO_x and ROG have been decreasing in the South Coast Air Basin and are projected to continue decreasing through 2010. The decreases are predominantly due to motor vehicle controls and reductions in evaporative emissions. In the South Coast Air Basin, on-road motor vehicles are the largest contributors to CO, NO_x, and ROG emissions. Other mobile sources are also significant contributors to CO and NO_x emissions. State Implementation Plan (SIP) and conformity inventory forecasts may differ from the forecasts presented in this almanac. For more information on these forecasts, please see the ARB SIP web page at *www.arb.ca.gov/sip/siprev1.htm*.

South Coast Air Basin

Population and VMT

Both population and the daily number of vehicle miles traveled, or VMT, grew at high rates in the South Coast Air Basin from 1981 to 2000. The population increased 34 percent -- from about 11.1 million in 1981 to almost 14.9 million in 2000. During the same general period, the number of vehicle miles traveled each day increased about 84 percent -- from 171 million miles per day in 1981 to more than 315 million miles per day in 2000. While high growth rates are often associated with corresponding increases in emissions and pollutant concentrations, aggressive emission control programs in the South Coast Air Basin have resulted in emission decreases and a continuing improvement in air quality.

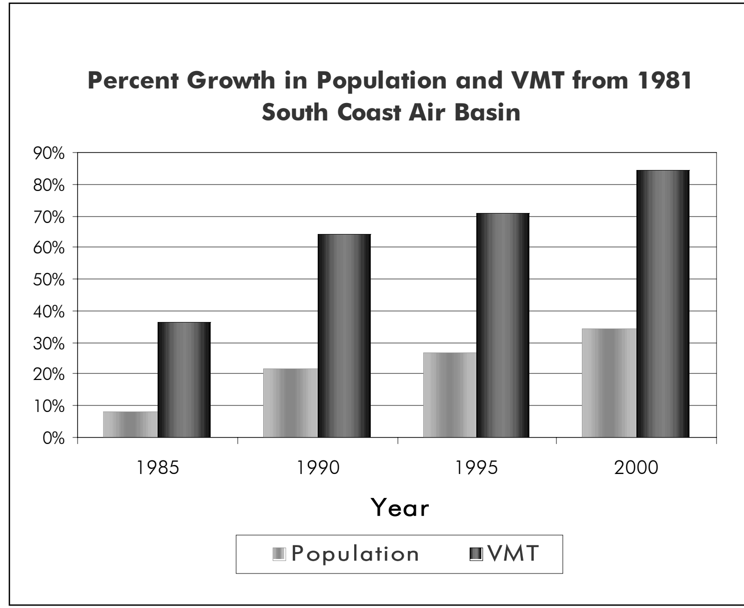

Figure 4-2

South Coast Air Basin

Ozone Precursor Emission Trends and Forecasts

Emissions of the ozone precursors NO_x and ROG in the South Coast Air Basin are generally following the statewide downward trend. Motor vehicle miles traveled in the basin are increasing, but NO_x and ROG emissions from on-road vehicles are dropping as more stringent vehicle emission standards have been adopted. These decreases in NO_x and ROG emissions are projected to continue between 2000 and 2010, as even more stringent motor vehicle standards are implemented and as newer, lower-emitting vehicles become a larger percentage of the fleet. NO_x emissions from electric utilities in the air basin have declined substantially since 1975, despite a nationwide increase in emissions from electric utilities in the same time period. These large reductions are primarily due to increased use of natural gas as the principal fuel for power plants, and control rules that limit NO_x emissions.

NO_x Emission Trends (tons/day, annual average)								
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
All Sources	***1751***	***1708***	***1801***	***1638***	***1339***	***1101***	***864***	***680***
Stationary Sources	383	361	323	182	136	98	73	74
Area-wide Sources	33	36	37	30	29	32	35	29
On-Road Mobile	991	945	1087	1063	875	679	490	351
Gasoline Vehicles	911	791	819	711	610	440	278	192
Diesel Vehicles	80	153	268	352	265	239	212	159
Other Mobile	344	366	354	364	299	292	267	226

Table 4-1

ROG Emission Trends (tons/day, annual average)								
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
All Sources	***2517***	***2185***	***2160***	***1696***	***1309***	***1003***	***741***	***632***
Stationary Sources	501	420	432	404	253	186	145	159
Area-wide Sources	211	231	255	227	205	200	177	168
On-Road Mobile	1675	1396	1324	900	676	470	320	227
Gasoline Vehicles	1670	1386	1309	883	664	460	311	220
Diesel Vehicles	5	9	15	16	12	10	9	7
Other Mobile	130	138	150	166	175	148	98	78

Table 4-2

South Coast Air Basin
Ozone Precursor Emission Trends and Forecasts

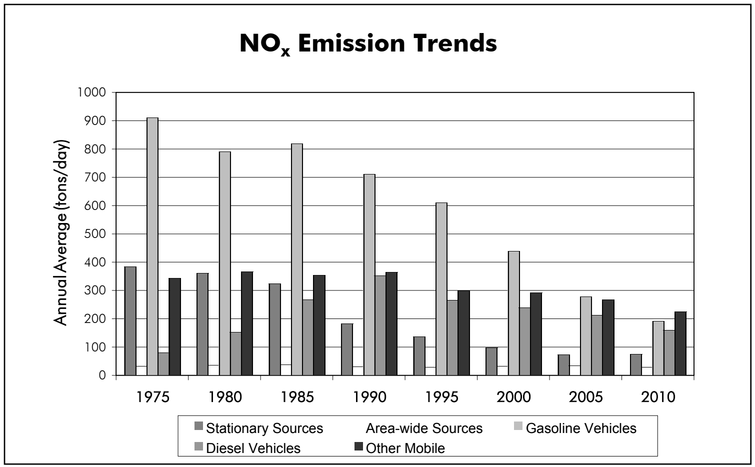

Figure 4-3

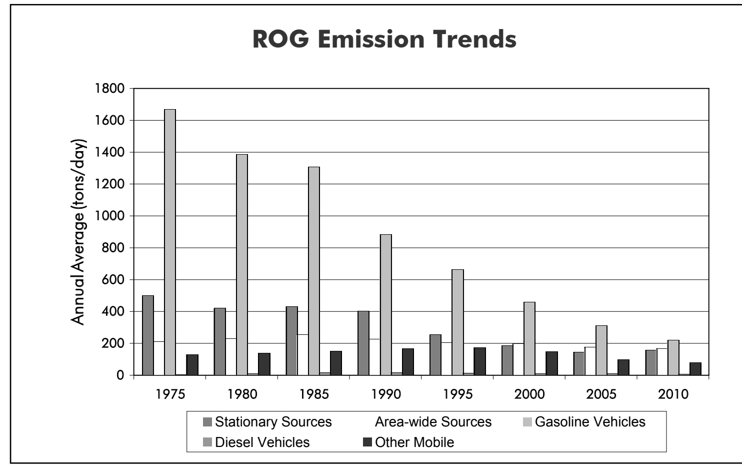

Figure 4-4

South Coast Air Basin

Ozone Air Quality Trend

Air quality as it relates to ozone in the South Coast Air Basin has improved substantially over the last 30 years. During the 1960s, maximum 1-hour concentrations were above 0.60 parts per million. Today, the maximum measured concentrations are less than one-third of that. All of the ozone statistics show a steady decline. The 2000 peak 1-hour indicator value is nearly 50 percent lower than the 1981 value. The maximum 1-hour concentration has decreased by more than 50 percent. The number of days above the standards has declined dramatically, as have the number of episode days. Stage I and Stage II episodes occur when a 1-hour concentration reaches 0.20 ppm and 0.35 ppm, respectively. The last Stage II episode occurred in 1988. While Stage I episodes could still occur, the number has been reduced from close to 100 during the early 1980s to only 1 during 1997, 11 during 1998, and 0 in 1999 and 2000.

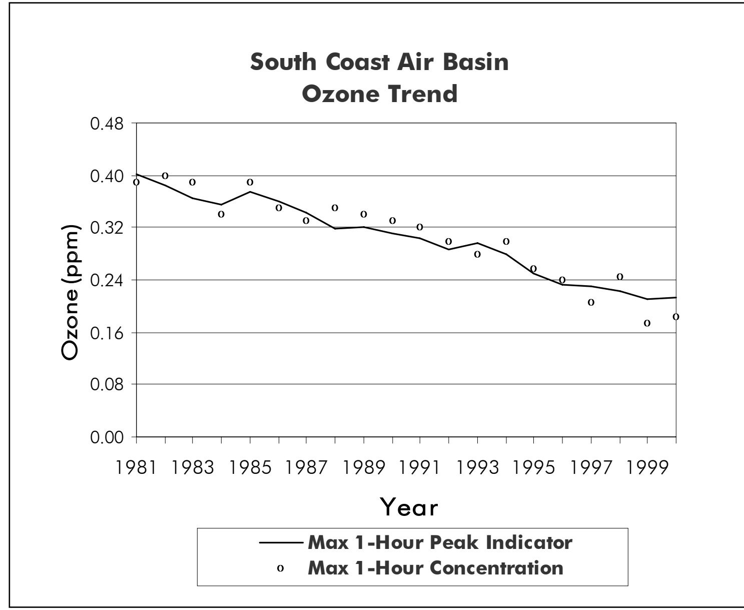

Figure 4-5

South Coast Air Basin
Ozone Air Quality Table

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator	0.401	0.385	0.365	0.354	0.375	0.360	0.344	0.319	0.320	0.310	0.304	0.286	0.297	0.279	0.249	0.233	0.229	0.224	0.211	0.213
National 1-Hr. Design Value	0.420	0.390	0.360	0.360	0.360	0.350	0.350	0.340	0.330	0.330	0.310	0.300	0.300	0.280	0.250	0.231	0.215	0.217	0.211	0.211
Nat. 8-Hr. Design Value	0.251	0.233	0.229	0.225	0.226	0.222	0.217	0.205	0.192	0.186	0.182	0.180	0.177	0.171	0.165	0.161	0.148	0.154	0.147	0.146
Maximum 1-Hr. Concentration	0.390	0.400	0.390	0.340	0.390	0.350	0.330	0.350	0.340	0.330	0.320	0.300	0.280	0.300	0.256	0.239	0.205	0.244	0.174	0.184
Max. 8-Hr. Concentration	0.282	0.265	0.258	0.248	0.288	0.251	0.210	0.258	0.252	0.193	0.203	0.218	0.195	0.208	0.203	0.173	0.148	0.206	0.142	0.149
Days Above State Standard	233	198	192	209	207	217	196	216	211	185	184	190	185	165	153	141	144	107	111	115
Days Above Nat. 1-Hr. Std.	187	151	153	175	158	167	161	178	157	131	130	142	124	118	98	85	64	60	39	33
Days Above Nat. 8-Hr. Std.	199	166	169	190	181	191	179	194	181	161	160	173	161	148	120	115	118	93	93	94

Table 4-3

South Coast Air Basin

PM_{10} Emission Trends and Forecasts

Direct emissions of PM_{10} have been increasing in the South Coast Air Basin since 1975. A decrease in emissions would have been observed, if not for growth in emissions from area-wide sources, primarily fugitive dust from paved and unpaved roads and other sources. The increase in activity of these area-wide sources reflects the increased growth and vehicle miles traveled (VMT) in the air basin.

PM_{10} Emission Trends (tons/day, annual average)								
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
All Sources	***291***	***312***	***341***	***398***	***387***	***364***	***360***	***371***
Stationary Sources	58	44	32	31	22	22	23	24
Area-wide Sources	196	228	263	317	325	302	297	307
On-Road Mobile	14	16	23	25	21	20	20	21
Gasoline Vehicles	10	8	10	11	12	14	15	17
Diesel Vehicles	4	8	13	14	8	6	5	4
Other Mobile	23	24	23	24	19	19	19	18

Table 4-4

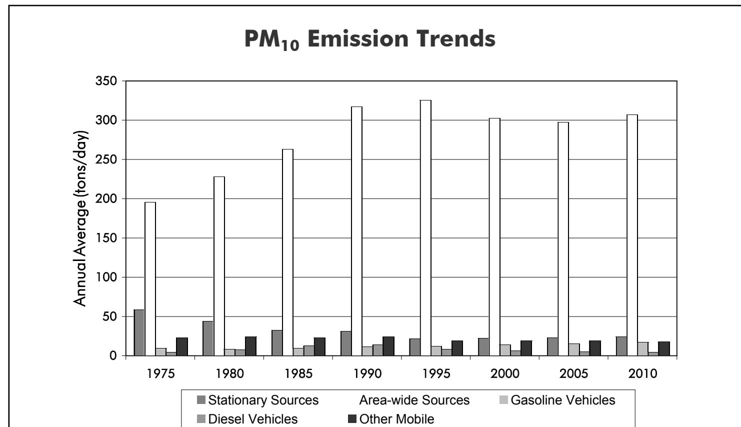

Figure 4-6

South Coast Air Basin

PM_{10} Air Quality Trend

As with other pollutants, the PM_{10} statistics also show overall improvement. During the period for which data are available, the maximum annual geometric mean decreased about 33 percent. Although the values for the last several years show some variability, this is probably due to meteorology rather than a change in emissions. Despite the overall decrease, ambient concentrations still exceed the State annual and 24-hour PM_{10} standards. Similar to the ambient concentrations, the calculated number of days above the 24-hour PM_{10} standards has also dropped. During 1988, there were 306 calculated days above the State standard and 30 calculated days above the national standard. By 2000, there were still 246 calculated State standard exceedance days. In contrast, there were no national standard exceedance days.

Despite these decreases, PM_{10} continues to pose a significant problem in the South Coast Air Basin. While emission controls implemented for ozone will also benefit PM_{10}, more controls aimed specifically at reducing PM_{10} will be needed to reach attainment.

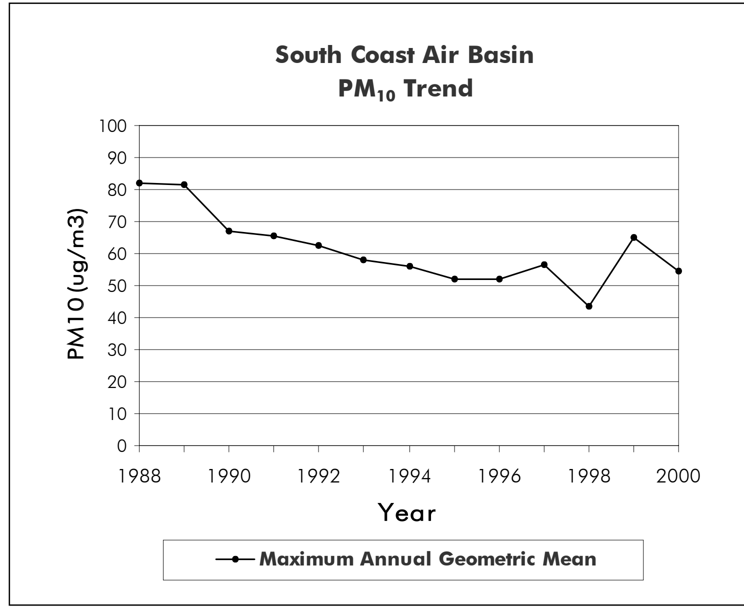

Figure 4-7

South Coast Air Basin

PM_{10} Air Quality Table

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration								289	271	475	179	649	231	161	219	162	227	116	183	139
Max. Annual Geometric Mean								81.8	81.3	66.9	65.5	62.4	58.0	56.0	51.8	52.0	56.3	43.3	64.9	54.6
Calc Days Above State 24-Hr Std								306	300	276	246	234	252	246	228	255	246	186	258	246
Calc Days Above Nat 24-Hr Std.								30	33	18	12	12	18	6	24	6	6	0	6	0

Table 4-5

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South Coast Air Basin
Carbon Monoxide Emission Trends and Forecasts

Emissions of CO have been trending downward since 1975 in the South Coast Air Basin even though motor vehicle miles traveled have increased and industrial activity has grown. On-road motor vehicle controls are primarily responsible for this decline in emissions of CO. Stationary source emissions decreased during the 1970s and 1980s as a result of a decline in the manufacture of carbon black (a material used in the manufacture of tires) and steel in the South Coast Air Basin. CO emissions from other mobile sources are projected to decrease as more stringent emission standards are adopted.

CO Emission Trends (tons/day, annual average)								
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
All Sources	***15497***	***13145***	***13012***	***10472***	***7918***	***5884***	***4230***	***3295***
Stationary Sources	297	289	76	101	57	52	55	58
Area-wide Sources	167	178	217	230	247	308	336	352
On-Road Mobile	14125	11721	11702	9030	6609	4631	3008	2104
Gasoline Vehicles	14105	11684	11637	8954	6551	4583	2967	2069
Diesel Vehicles	20	37	66	76	59	48	42	35
Other Mobile	909	957	1016	1110	1005	893	830	781

Table 4-6

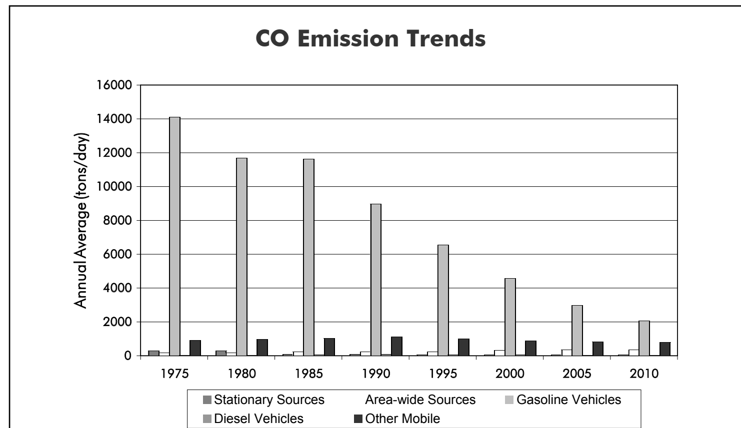

Figure 4-8

South Coast Air Basin

Carbon Monoxide Air Quality Trend

Carbon monoxide concentrations in the South Coast Air Basin have decreased markedly -- a total decrease of 48 percent in the maximum peak 8-hour indicator since 1981. The number of standard exceedance days has also declined. There were 89 days above the State standard and 78 days above the national standard during 1981. However, during 2000, there were only 6 State standard exceedance days and 3 national standard exceedance days.

While the entire South Coast Air Basin is designated as nonattainment for the national carbon monoxide standards and Los Angeles County is designated as nonattainment for the State standards, CO violations are limited to a small portion of Los Angeles County. No violations have occurred in the other three counties since 1992. Continued reductions in motor vehicle emissions should eventually bring the entire area into attainment.

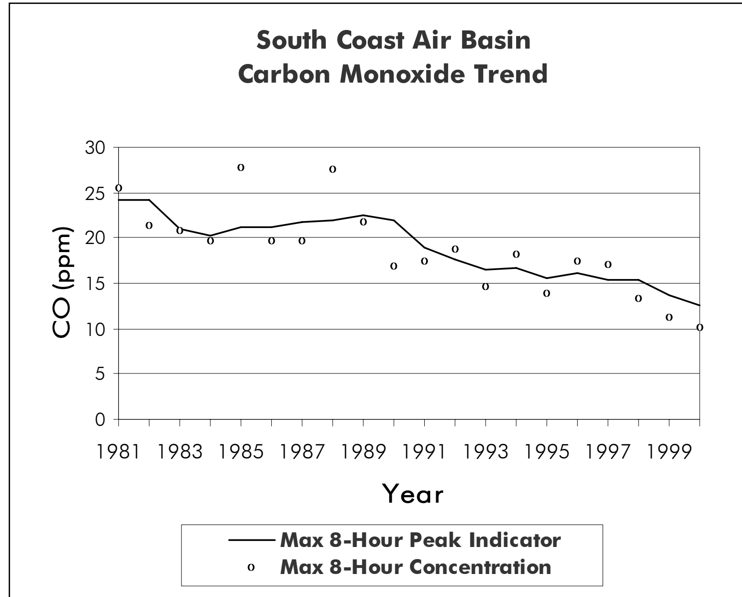

Figure 4-9

South Coast Air Basin

Carbon Monoxide Air Quality Table

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator	24.1	24.1	21.0	20.2	21.1	21.1	21.7	21.9	22.5	21.9	19.0	17.7	16.5	16.7	15.6	16.1	15.4	15.4	13.7	12.6
Max. 1-Hr. Concentration	31.0	27.0	31.0	29.0	33.0	27.0	26.0	32.0	31.0	24.0	30.0	28.0	21.0	24.9	16.8	22.5	19.2	17.0	19.0	13.8
Max. 8-Hr. Concentration	25.5	21.3	20.9	19.7	27.7	19.7	19.6	27.5	21.8	16.8	17.4	18.8	14.6	18.2	13.8	17.5	17.1	13.3	11.2	10.1
Days Above State 8-Hr. Std.	89	79	67	79	64	58	50	73	71	50	51	39	29	27	17	26	18	13	11	6
Days Above Nat. 8-Hr. Std.	78	68	57	66	54	49	40	65	67	42	41	34	19	19	14	19	13	10	7	3

Table 4-7

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South Coast Air Basin

Nitrogen Dioxide

Oxides of Nitrogen Emission Trends and Forecasts

NO_x (and nitrogen dioxide) emissions in the South Coast Air Basin have been trending downward since 1975. This decline should continue as more stringent motor vehicle and stationary source emission standards are adopted and implemented.

NO_x Emission Trends (tons/day, annual average)								
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
All Sources	***1751***	***1708***	***1801***	***1638***	***1339***	***1101***	***864***	***680***
Stationary Sources	383	361	323	182	136	98	73	74
Area-wide Sources	33	36	37	30	29	32	35	29
On-Road Mobile	991	945	1087	1063	875	679	490	351
Gasoline Vehicles	911	791	819	711	610	440	278	192
Diesel Vehicles	80	153	268	352	265	239	212	159
Other Mobile	344	366	354	364	299	292	267	226

Table 4-8

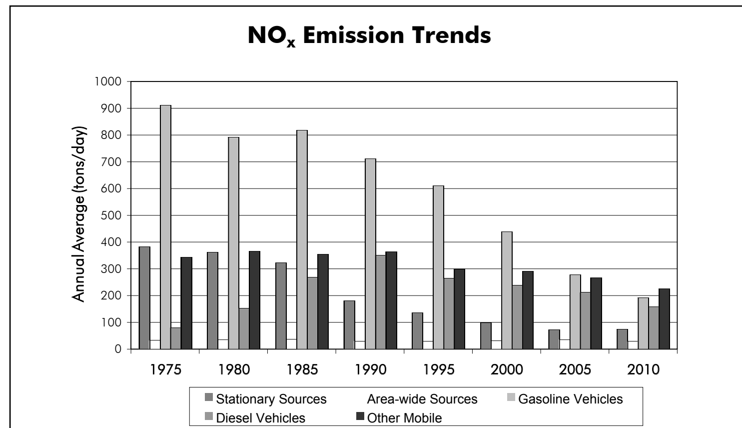

Figure 4-10

South Coast Air Basin

Nitrogen Dioxide Air Quality Trend

The South Coast Air Basin is one of only a few areas in California where nitrogen dioxide has been a problem. However, over the last 20 years, there has been a fairly steady decline in NO_2 values. The maximum peak 1-hour indicator for 2000 was less than half what it was during 1981. Nitrogen dioxide concentrations in the South Coast area no longer violate the State and national standards. Furthermore, the downward trend should continue in the future.

Nitrogen dioxide is formed from oxides of nitrogen emissions, which also contribute to ozone. As a result, the majority of the future emission control measures will be implemented as part of the overall ozone control strategy. Many of these control measures will target mobile sources, which account for about three-quarters of California's oxides of nitrogen emissions.

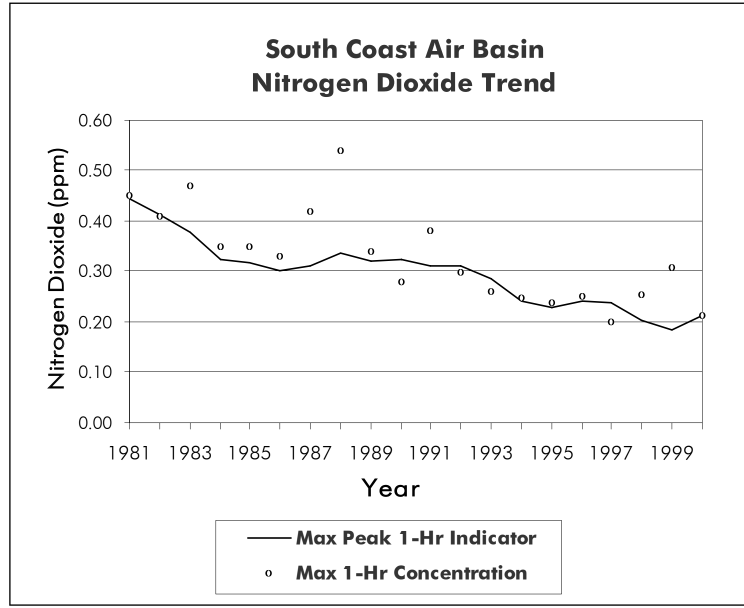

Figure 4-11

South Coast Air Basin

Nitrogen Dioxide Air Quality Table

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator	0.445	0.414	0.378	0.324	0.317	0.303	0.311	0.335	0.322	0.324	0.312	0.311	0.285	0.241	0.229	0.242	0.237	0.202	0.185	0.213
Max. 1-Hr. Concentration	0.450	0.410	0.470	0.350	0.350	0.330	0.420	0.540	0.340	0.280	0.380	0.300	0.260	0.247	0.239	0.250	0.200	0.255	0.307	0.214
Max. Annual Average	0.071	0.062	0.059	0.057	0.060	0.061	0.055	0.061	0.057	0.055	0.055	0.051	0.050	0.050	0.046	0.042	0.043	0.043	0.051	0.044

Table 4-9

San Francisco Bay Area Air Basin

Introduction - Area Description

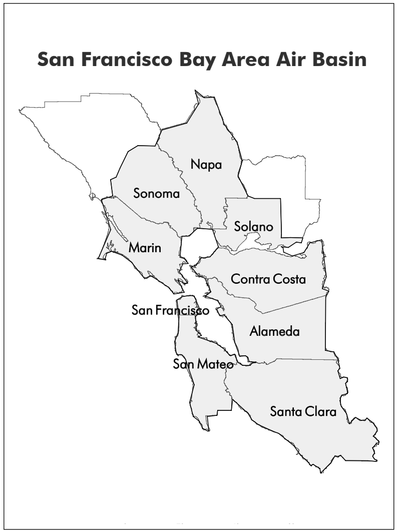

Figure 4-12

The San Francisco Bay Area is California's second largest metropolitan area and is the focal point of northern California. The nine county area comprises all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara counties, the southern half of Sonoma County, and the southwestern portion of Solano County. The unifying feature of the area is the Bay itself, which is oriented north-south and covers about 400 square miles of the area's total 5,545 square miles. About 20 percent of California's population resides in the San Francisco Bay Area, and pollution sources in the region account for about 16 percent of the total statewide criteria pollutant emissions. The climate in the San Francisco Bay Area varies from one location to the next. Along the coast, temperatures are mild year-round. However, as one moves inland, temperatures show larger diurnal and seasonal variations. Overall air quality in the San Francisco Bay Area Air Basin is better than in the South Coast Air Basin. This is due to a more favorable climate, with cooler temperatures and better ventilation. However, violations of both the State and national ozone standards continue to occur in the San Francisco Bay Area Air Basin, and still pose challenges to State and local air pollution control agencies.

San Francisco Bay Area Air Basin
Emission Trends and Forecasts

The emission levels for the ozone precursors NO_x and ROG have been trending downward in the San Francisco Bay Area Air Basin since 1975. CO emissions have also been trending downward since 1975. On-road motor vehicles are the largest contributors to CO, ROG, and NO_x emissions in the air basin. The implementation of stricter mobile source (both on-road and other) emission standards will continue to decrease vehicle emissions in this air basin. Controls on stationary source solvent evaporation and fugitive emissions will also continue to impact ROG emissions.

San Francisco Bay Area Air Basin

Population and VMT

Compared to the State's other urban areas, population and the number of vehicle miles traveled each day grew at a slower rate in the San Francisco Bay Area Air Basin from 1981 to 2000. During that 20-year period, the population increased about 27 percent -- from about 5.3 million in 1981 to more than 6.7 million in 2000. During the same period, the daily VMT increased about 63 percent--from nearly 98 million miles per day in 1981 to about 159 million miles per day in 2000. While these growth rates are lower than the growth rates seen in the other urban areas, they still represent substantial increases.

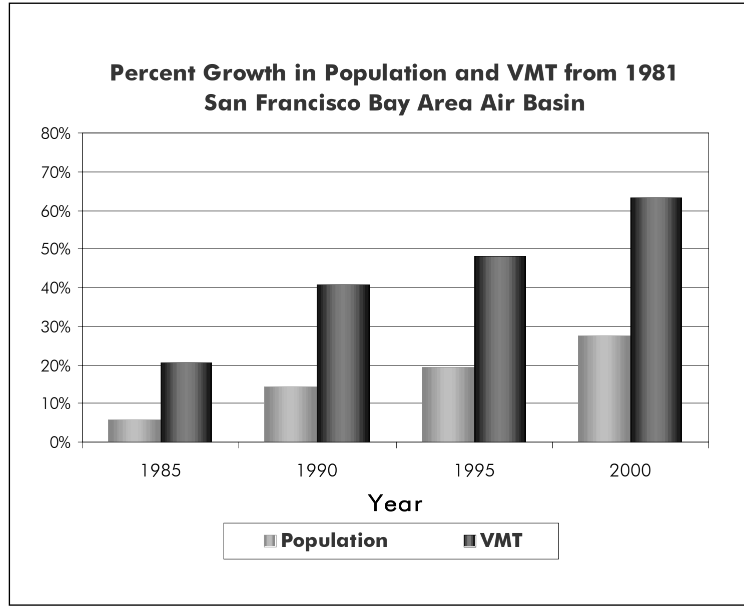

Figure 4-13

San Francisco Bay Area Air Basin
Ozone Precursor Emission Trends
Trends and Forecasts

Emissions of ozone precursors have decreased in the San Francisco Bay Area Air Basin since 1975 and are projected to continue declining through 2010. The Bay Area has a significant motor vehicle population, and the implementation of stricter motor vehicle controls has resulted in significant emissions reductions for NO_x and ROG. Stationary source emissions of ROG have declined over the last 20 years due to new controls for oil refinery fugitive emissions and new rules for control of ROG from various industrial coatings and solvent operations.

NO_x Emission Trends (tons/day, annual average)								
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
All Sources	***951***	***966***	***899***	***866***	***746***	***636***	***546***	***443***
Stationary Sources	239	217	145	139	113	91	87	88
Area-wide Sources	20	22	20	23	24	23	22	22
On-Road Mobile	525	567	562	518	432	349	279	198
Gasoline Vehicles	484	495	438	358	303	218	161	113
Diesel Vehicles	42	72	124	160	129	131	118	86
Other Mobile	167	160	172	185	177	174	159	134

Table 4-10

ROG Emission Trends (tons/day, annual average)								
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
All Sources	***1339***	***1333***	***1091***	***798***	***684***	***552***	***457***	***396***
Stationary Sources	303	318	239	166	155	144	142	144
Area-wide Sources	94	95	96	102	93	90	84	85
On-Road Mobile	880	853	684	451	347	242	177	123
Gasoline Vehicles	877	849	677	443	341	237	172	119
Diesel Vehicles	3	5	7	8	6	5	5	4
Other Mobile	62	67	72	79	88	76	53	43

Table 4-11

San Francisco Bay Area Air Basin

Ozone Precursor Emission Trends and Forecasts

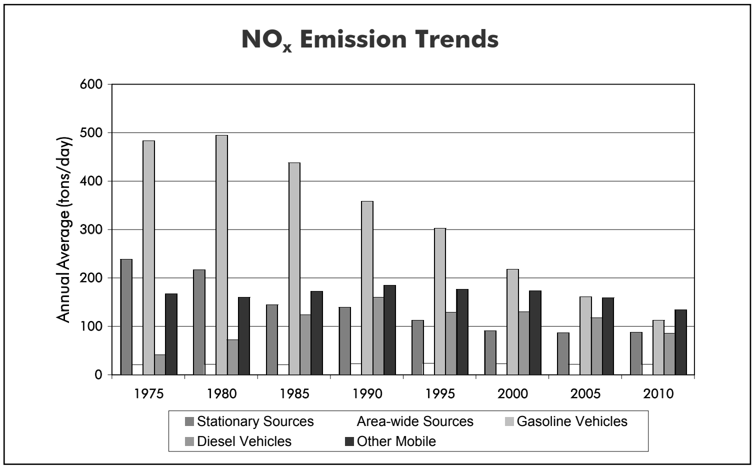

Figure 4-14

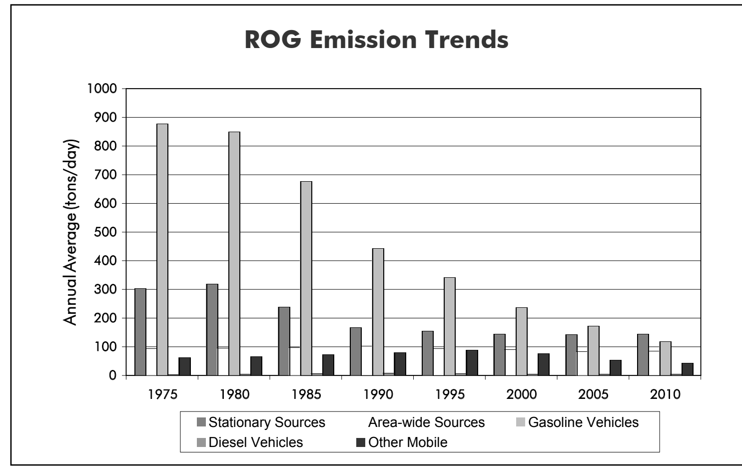

Figure 4-15

San Francisco Bay Area Air Basin

Ozone Air Quality Trend

Ozone concentrations in the San Francisco Bay Area are much lower than in the South Coast Air Basin. The peak 1-hour indicator declined about 12 percent from 1981 to 2000. Although the trend has not been consistently downward, the ambient concentrations generally declined from 1981 to 1994. Since 1994, the peak indicator values have been somewhat higher. However, it is not yet clear whether these data represent a significant change in the overall trend. Data for 1999 and 2000 are slightly lower than values during the prior few years.

The number of days above the State and national 1-hour standards show a similar trend. The number of exceedance days generally decreased until the mid-1990s and then increased during 1995 to 1998. The one exception is 1997, when there was a sharp decline in the number of exceedance days. However, meteorological conditions during 1997 were favorable for low ozone concentrations. Given this, the low values during that year are not unexpected. During 1999 and 2000, the number of exceedance days again declined. However, data from more years are needed to determine whether the improvement will continue.

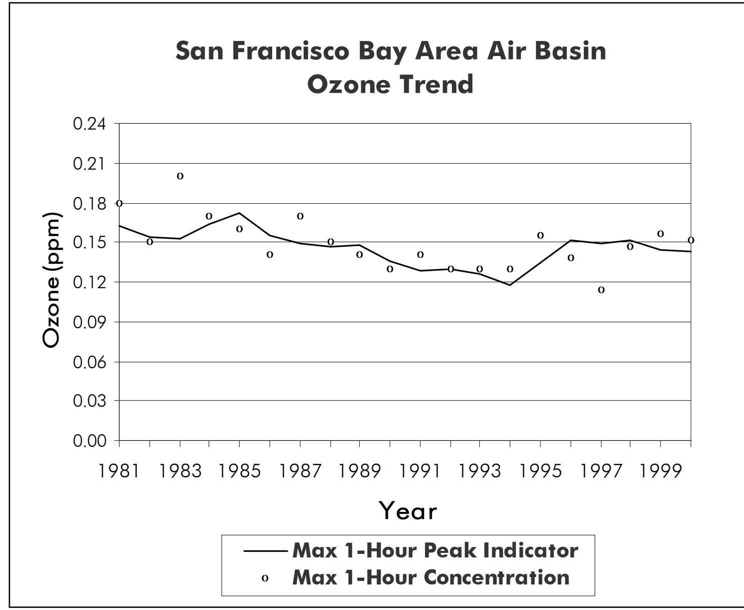

Figure 4-16

San Francisco Bay Area Air Basin

Ozone Air Quality Table

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator	0.162	0.154	0.153	0.164	0.172	0.155	0.149	0.147	0.148	0.136	0.129	0.130	0.126	0.118	0.135	0.151	0.149	0.151	0.144	0.143
National 1-Hr. Design Value	0.190	0.180	0.160	0.160	0.160	0.150	0.140	0.140	0.140	0.130	0.130	0.120	0.120	0.121	0.138	0.138	0.138	0.138	0.139	0.139
Nat. 8-Hr. Design Value	0.103	0.094	0.095	0.100	0.103	0.097	0.092	0.092	0.097	0.088	0.084	0.082	0.081	0.082	0.087	0.093	0.090	0.089	0.086	0.087
Maximum 1-Hr. Concentration	0.180	0.150	0.200	0.170	0.160	0.140	0.170	0.150	0.140	0.130	0.140	0.130	0.130	0.130	0.155	0.138	0.114	0.147	0.156	0.152
Max. 8-Hr. Concentration	0.123	0.108	0.150	0.124	0.127	0.106	0.116	0.101	0.102	0.105	0.108	0.101	0.112	0.097	0.115	0.112	0.084	0.111	0.122	0.114
Days Above State Standard	51	36	53	55	45	39	46	41	22	14	23	23	19	13	28	34	8	29	20	12
Days Above Nat. 1-Hr. Std.	8	5	21	22	9	5	14	5	4	2	2	2	3	2	11	8	0	8	3	3
Days Above Nat. 8-Hr. Std.	23	13	26	32	17	13	29	20	13	7	6	6	5	4	18	14	0	16	9	4

Table 4-12

San Francisco Bay Area Air Basin

PM_{10} Emission Trends and Forecasts

Direct emissions of PM_{10} are increasing slightly in the San Francisco Bay Area Air Basin between 1975 and 2010. This increase is due to growth in emissions from area-wide sources, primarily fugitive dust sources. Emissions of directly emitted PM_{10} from diesel motor vehicles have been decreasing since 1990 even though population and vehicle miles traveled (VMT) are growing, due to adoption of more stringent emission standards.

PM10 Emission Trends (tons/day, annual average)								
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
All Sources	***143***	***147***	***159***	***170***	***177***	***183***	***194***	***203***
Stationary Sources	38	27	23	20	22	18	19	20
Area-wide Sources	86	100	112	124	133	143	152	162
On-Road Mobile	7	8	11	12	10	10	10	10
Gasoline Vehicles	5	5	5	5	6	7	7	8
Diesel Vehicles	2	4	6	7	4	3	3	2
Other Mobile	12	12	13	14	13	13	13	12

Table 4-13

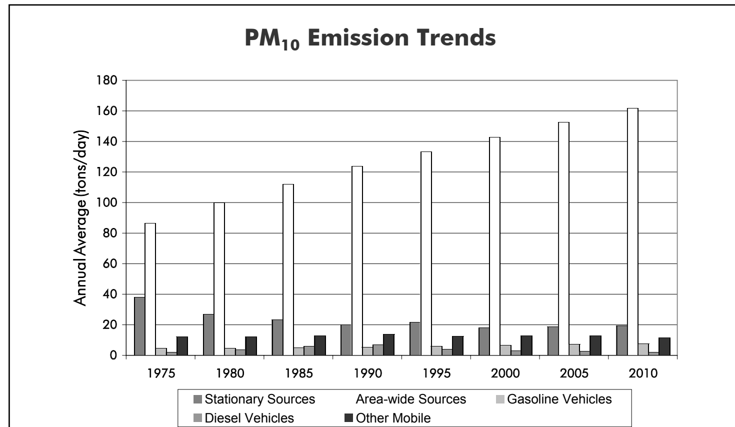

Figure 4-17

San Francisco Bay Area Air Basin

PM_{10} Air Quality Trend

PM_{10} is generally sampled only once every six days. As a result, there are fewer data on which to base historical trends. However, based on the data that are available, the annual geometric mean concentration declined more than 30 percent from 1988 to 2000.

The data show that the annual State standard has not been exceeded for nearly a decade. Furthermore, calculated exceedance days for the State 24-hour standard dropped from a high of 90 days during 1991 to 42 days during 2000. The national 24-hour standard was last exceeded in 1991. Because many of the same sources contribute to both ozone and PM_{10}, future ozone precursor emission controls should help ensure continued PM_{10} improvements.

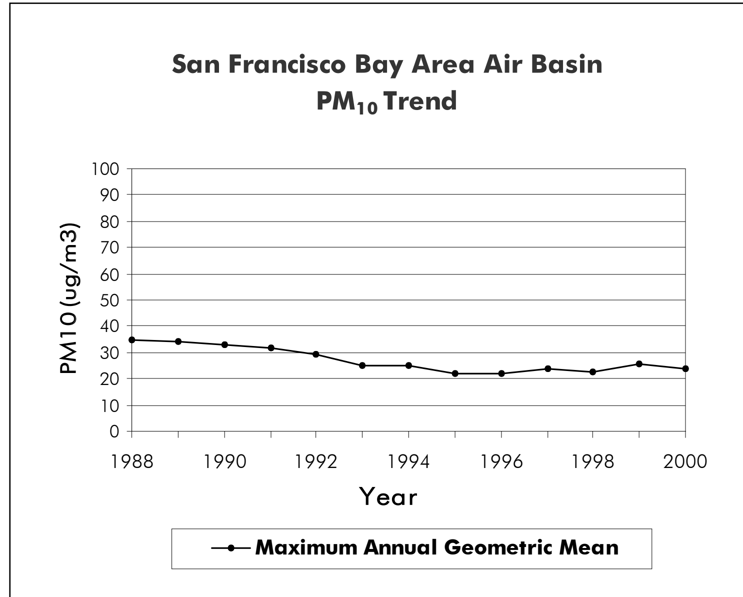

Figure 4-18

San Francisco Bay Area Air Basin

PM_{10} Air Quality Table

PM10 (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration								146	150	173	155	112	101	97	74	76	95	92	114	76
Max. Annual Geometric Mean								34.6	34.4	33.0	31.5	29.5	25.1	24.8	22.1	22.1	23.7	22.5	25.4	23.7
Calc Days Above State 24-Hr Std								78	84	72	90	78	48	42	24	12	18	18	36	42
Calc Days Above Nat 24-Hr Std								0	0	6	3	0	0	0	0	0	0	0	0	0

Table 4-14

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San Francisco Bay Area Air Basin

Carbon Monoxide Emission Trends and Forecasts

Emissions of CO have been declining in the San Francisco Bay Area Air Basin over the last 25 years. Motor vehicles and other mobile sources are the largest sources of CO emissions in the air basin. Emissions from motor vehicles have been declining, with the introduction of new automotive emission controls, despite increases in vehicle miles traveled (VMT). Oil refineries, manufacturing, and electric generation contribute a significant portion of the stationary source CO emissions. Area-wide CO emissions are primarily from residential fuel combustion (including wood), waste burning, and fires.

CO Emission Trends (tons/day, annual average)								
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
All Sources	***8382***	***8131***	***7013***	***5243***	***3964***	***2933***	***2284***	***1727***
Stationary Sources	47	57	75	67	59	36	36	38
Area-wide Sources	166	165	165	166	167	168	168	169
On-Road Mobile	7787	7505	6321	4506	3227	2277	1659	1125
Gasoline Vehicles	7777	7487	6291	4471	3198	2252	1637	1106
Diesel Vehicles	10	18	31	35	29	25	23	19
Other Mobile	382	404	451	503	511	452	420	395

Table 4-15

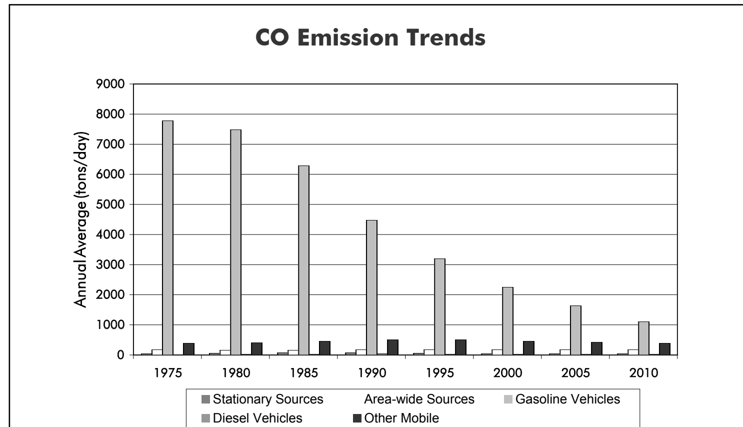

Figure 4-19

San Francisco Bay Area Air Basin

Carbon Monoxide Air Quality Trend

As in other areas of the State, carbon monoxide concentrations in the San Francisco Bay Area Air Basin have declined substantially over the last 20 years. The peak 8-hour indicator value during 2000 was less than half what it was during 1981 and is now well below the level of the standards. In fact, neither the State nor the national standards have been exceeded in this area since 1991.

Much of the decline in ambient carbon monoxide concentrations can be attributed to the introduction of clean fuels and newer, cleaner motor vehicles. The San Francisco Bay Area Air Basin is currently designated as attainment for both the State and national CO standards. Based on emission projections, the area is expected to maintain its attainment status in the coming years.

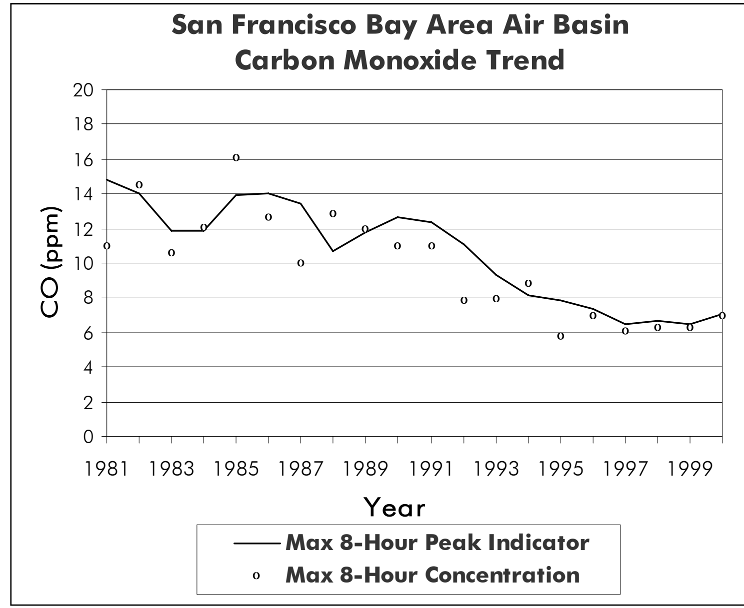

Figure 4-20

San Francisco Bay Area Air Basin

Carbon Monoxide Air Quality Table

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator	14.8	14.0	11.9	11.9	13.9	14.0	13.4	10.7	11.8	12.6	12.4	11.1	9.3	8.1	7.8	7.4	6.5	6.7	6.5	7.1
Max. 1-Hr. Concentration	16.0	18.0	17.0	20.0	21.0	20.0	17.0	15.0	19.0	18.0	15.0	12.0	14.0	12.0	10.1	8.8	10.7	8.7	9.0	9.8
Max. 8-Hr. Concentration	11.0	14.5	10.6	12.1	16.1	12.6	10.0	12.8	12.0	11.0	11.0	7.8	7.9	8.8	5.8	7.0	6.1	6.3	6.3	7.0
Days Above State 8-Hr. Std.	6	15	4	8	24	8	2	4	10	4	5	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	4	12	4	7	21	8	1	4	9	2	4	0	0	0	0	0	0	0	0	0

Table 4-16

San Joaquin Valley Air Basin

Introduction - Area Description

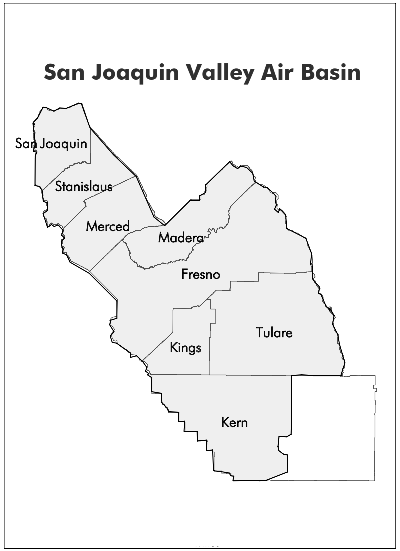

Figure 4-21

The San Joaquin Valley Air Basin occupies the southern two-thirds of California's Central Valley. The eight-county area comprises Fresno, Kings, Madera, Merced, San Joaquin, Stanislaus, and Tulare counties and the western portion of Kern County. The Valley spreads across nearly 25,000 square miles. With very few exceptions, the San Joaquin Valley is flat and unbroken, with most of the area below 400 feet elevation. The Valley floor slopes downward from east to west, and the San Joaquin River winds its way along the western side from south to north. Similar to other inland areas, the San Joaquin Valley has cool wet winters and hot dry summers. Generally, the temperature increases and rainfall decreases from north to south.

In contrast to other California areas, air quality in the San Joaquin Valley is not dominated by emissions from one large urban area. Instead, there are a number of moderately sized urban areas spread along the main axis of the Valley. This wide distribution of emissions complicates the challenge faced by air quality control agencies. Overall, about 9 percent of California's population lives in the San Joaquin Valley, and pollution sources in the region account for about 14 percent of the total statewide criteria pollutant emissions.

San Joaquin Valley Air Basin

Emission Trends and Forecasts

Overall, the emission levels in the San Joaquin Valley Air Basin have been decreasing since 1990, with the exception of PM_{10} emissions. The decreases are predominantly due to motor vehicle controls and reductions in evaporative and fugitive emissions. On-road motor vehicles are the largest contributors to CO emissions in the San Joaquin Valley. On-road motor vehicles, other mobile sources, and stationary sources are all significant contributors to NO_x emissions. A significant portion of the stationary source ROG emissions is fugitive emissions from the extensive oil and gas production operations in the lower San Joaquin Valley. PM_{10} emissions are mostly fugitive dust from paved and unpaved roads, agricultural operations, and waste burning.

San Joaquin Valley Air Basin

Population and VMT

Compared to California's other urban areas, the population and number of vehicle miles traveled each day in the San Joaquin Valley Air Basin grew at a much faster rate during the 1981 to 2000 time period. The population increased about 56 percent, from nearly 2.1 million in 1981 to over 3.2 million in 2000. During the same period, the daily VMT more than doubled -- from about 35 million miles per day in 1981 to over 82 million miles per day in 2000.This represents a 136 percent increase. Because these growth rates are so much higher than the growth rates in other areas, there has not been the same level of air quality improvement in the San Joaquin Valley Air Basin, especially with respect to ozone.

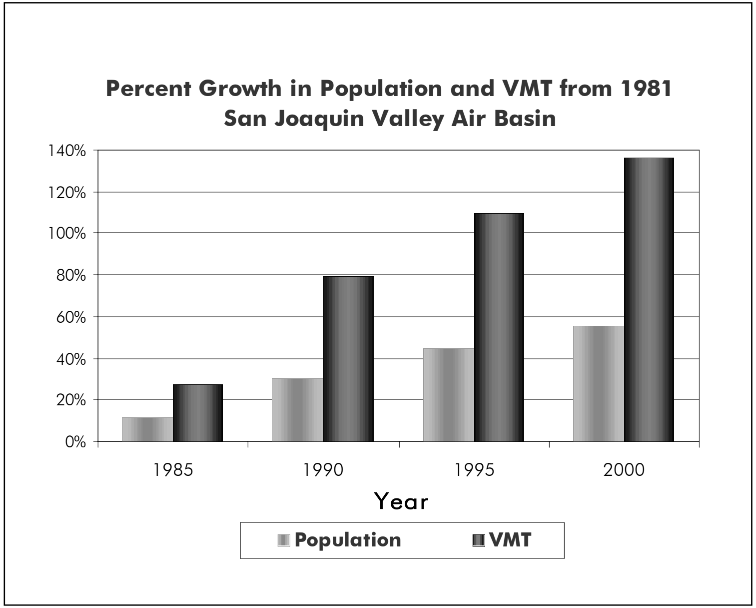

Figure 4-22

San Joaquin Valley Air Basin

Ozone Precursor Emission Trends and Forecasts

Emissions of the ozone precursors NO_x and ROG are decreasing in the San Joaquin Valley Air Basin. Both stationary source and motor vehicle NO_x emissions have been reduced by the adoption of more stringent emission standards. Stricter standards have reduced ROG emissions from motor vehicles since 1980, even though vehicle miles traveled (VMT) have been increasing. Stationary and area-wide sources of ROG include petroleum production operations and the use of solvents. Stricter emission standards and new controls have reduced the ROG emissions from these sources. Also, declining crude oil prices have resulted in cutbacks in oil production activities and an attendant decrease in ROG fugitive emissions. Future increases in oil prices could result in higher levels of production, which could again increase emissions.

NO_x Emission Trends (tons/day, annual average)								
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
All Sources	***614***	***775***	***757***	***796***	***678***	***577***	***494***	***426***
Stationary Sources	199	279	268	279	220	174	162	169
Area-wide Sources	7	9	10	10	11	12	12	13
On-Road Mobile	202	245	287	323	295	246	198	145
Gasoline Vehicles	160	175	175	184	178	138	96	66
Diesel Vehicles	42	70	112	139	118	108	103	78
Other Mobile	207	243	192	184	152	144	122	99

Table 4-17

ROG Emission Trends (tons/day, annual average)								
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
All Sources	***950***	***1032***	***914***	***625***	***509***	***477***	***440***	***424***
Stationary Sources	496	544	439	164	97	96	102	108
Area-wide Sources	116	141	149	168	154	180	189	204
On-Road Mobile	284	286	269	236	197	144	104	72
Gasoline Vehicles	282	282	262	228	191	139	99	68
Diesel Vehicles	3	5	7	8	6	5	5	4
Other Mobile	55	61	57	58	62	57	46	40

Table 4-18

San Joaquin Valley Air Basin

Ozone Precursor Emission Trends and Forecasts

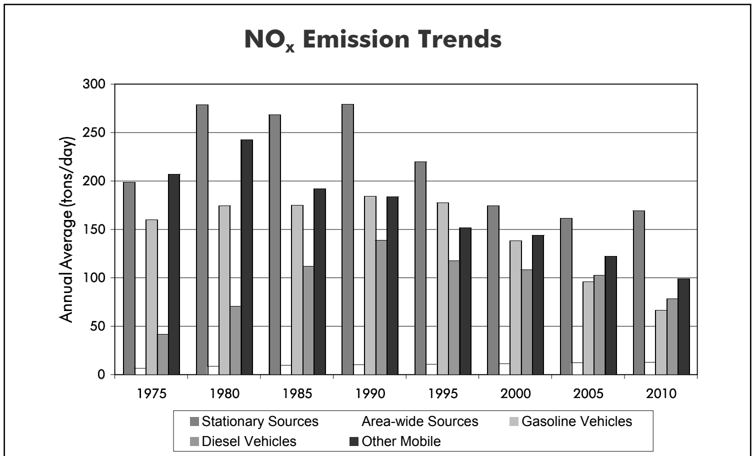

Figure 4-23

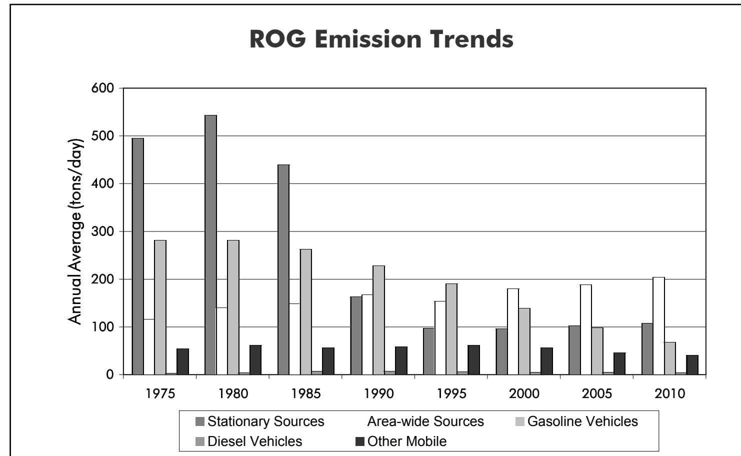

Figure 4-24

San Joaquin Valley Air Basin

Ozone Air Quality Trend

The ozone problem in the San Joaquin Valley ranks among the most severe in the State. During 1981 through 2000, the maximum peak 1-hour indicator decreased slightly, on the order of 14 percent. The number of national 1-hour standard exceedance days has shown a greater improvement. During 1981, there were 69 national 1-hour standard exceedance days. This compares with 30 national 1-hour standard exceedance days in 2000. In contrast, the number of State standard exceedance days shows a much smaller drop -- 130 in 1981 compared with 114 in 2000.

While air quality as related to ozone has improved throughout the State, the inland areas have generally shown less improvement than the coastal areas. This is due in part to the faster growth rates in the inland areas such as the San Joaquin Valley.

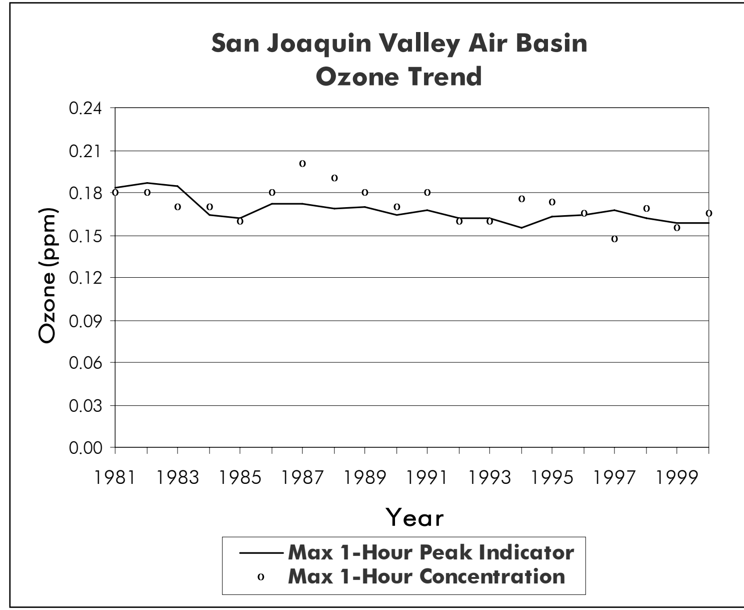

Figure 4-25

San Joaquin Valley Air Basin

Ozone Air Quality Table

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator	0.183	0.186	0.184	0.164	0.162	0.172	0.172	0.169	0.170	0.164	0.167	0.162	0.162	0.155	0.163	0.164	0.167	0.162	0.159	0.158
National 1-Hr. Design Value	0.180	0.170	0.170	0.160	0.160	0.170	0.170	0.170	0.170	0.160	0.160	0.160	0.160	0.160	0.165	0.165	0.164	0.161	0.161	0.161
Nat. 8-Hr. Design Value	0.127	0.123	0.116	0.114	0.111	0.117	0.118	0.121	0.120	0.119	0.118	0.115	0.112	0.111	0.119	0.119	0.115	0.115	0.113	0.111
Maximum 1-Hr. Concentration	0.180	0.180	0.170	0.170	0.160	0.180	0.200	0.190	0.180	0.170	0.180	0.160	0.160	0.175	0.173	0.165	0.147	0.169	0.155	0.165
Max. 8-Hr. Concentration	0.148	0.133	0.122	0.136	0.131	0.135	0.150	0.127	0.136	0.123	0.130	0.121	0.125	0.129	0.134	0.137	0.127	0.136	0.123	0.131
Days Above State Standard	130	113	105	135	149	147	156	156	148	131	133	127	125	118	124	120	110	90	123	114
Days Above Nat. 1-Hr. Std.	69	43	41	61	53	59	65	74	54	45	51	29	43	43	44	56	16	39	28	30
Days Above Nat. 8-Hr. Std.	96	108	100	120	127	134	148	140	133	104	121	119	104	108	109	114	95	84	117	103

Table 4-19

San Joaquin Valley Air Basin

PM_{10} Emission Trends and Forecasts

Direct emissions of PM_{10} are increasing in the San Joaquin Valley Air Basin between 1975 and 2010. This increase is due to growth in emissions from area-wide sources, primarily fugitive dust from vehicle travel on unpaved and paved roads, waste burning, and residential fuel combustion (including wood). Emissions of directly emitted PM_{10} from motor vehicles are decreasing between 1990 and 2010 due to new diesel standards.

PM_{10} Emission Trends (tons/day, annual average)								
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
All Sources	***366***	***444***	***446***	***450***	***441***	***465***	***480***	***491***
Stationary Sources	55	42	37	30	31	30	28	29
Area-wide Sources	294	382	390	399	394	419	437	447
On-Road Mobile	4	5	7	9	7	7	7	7
Gasoline Vehicles	2	2	2	3	3	4	5	5
Diesel Vehicles	2	3	5	6	4	3	2	2
Other Mobile	12	15	12	12	9	9	8	7

Table 4-20

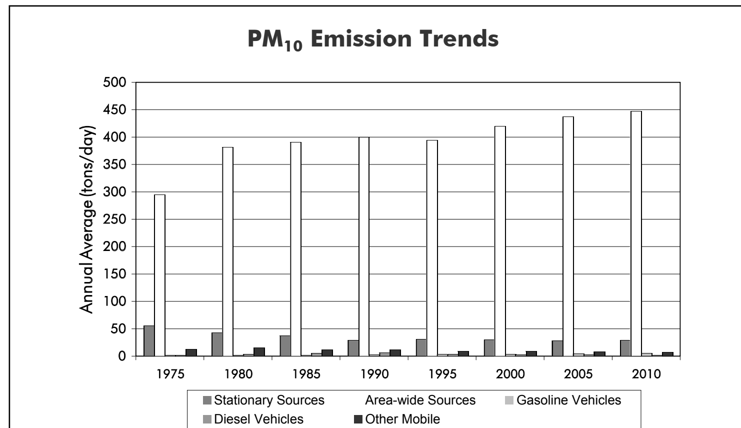

Figure 4-26

San Joaquin Valley Air Basin
PM_{10} Air Quality Trend

The available PM_{10} data show some variation during the trend period, but overall, there has been a downward trend. Part of the variation can be attributed to meteorology. Long periods of stagnation during the winter months allow PM_{10} to accumulate over many days with resulting high concentrations. The maximum annual geometric mean shows a decrease of about 24 percent from 1988 to 2000. The calculated number of days exceeding the State and national 24-hour standards also shows a decrease. There were 246 calculated State standard exceedance days and 27 calculated national standard exceedance days during 1988. During 2000, there were 180 calculated State standard exceedance days and no national standard exceedance days. Although PM_{10} air quality has improved overall in the San Joaquin Valley Air Basin, values for 1999 and 2000 were higher than those for 1998. We will need several more years of data before we can determine whether this trend is a result of meteorology or a change in emissions. However, based on the ambient data, it will still be a number of years before this area reaches attainment.

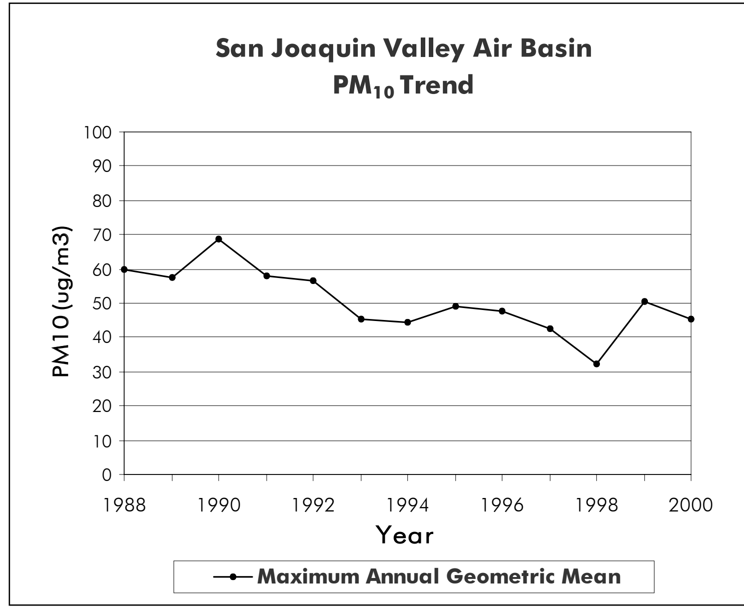

Figure 4-27

San Joaquin Valley Air Basin

PM_{10} Air Quality Table

PM10 (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration								244	250	439	279	183	239	190	279	153	199	160	183	145
Max. Annual Geometric Mean								60.0	57.3	68.5	58.1	56.6	45.3	44.3	48.9	47.6	42.3	32.1	50.3	45.4
Calc Days Above State 24-Hr Std								246	234	267	225	216	180	156	186	204	108	114	174	180
Calc Days Above Nat 24-Hr Std								27	36	30	24	6	18	12	9	0	6	6	9	0

Table 4-21

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San Joaquin Valley Air Basin
Carbon Monoxide Emission Trends and Forecasts

Emissions of CO are trending downward between 1985 and 2010. Motor vehicles are by far the largest source of CO emissions. Emissions from motor vehicles have been declining since 1985, despite increases in vehicle miles traveled (VMT), with the introduction of new automotive emission controls and fleet turnover.

CO Emission Trends (tons/day, annual average)								
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
All Sources	***3350***	***3586***	***3434***	***3230***	***2610***	***2281***	***1836***	***1508***
Stationary Sources	177	157	66	77	65	60	61	63
Area-wide Sources	147	181	190	198	208	396	407	419
On-Road Mobile	2705	2853	2832	2586	1980	1493	1049	721
Gasoline Vehicles	2695	2834	2801	2551	1950	1469	1028	703
Diesel Vehicles	11	19	31	35	30	23	22	19
Other Mobile	321	395	347	369	358	332	318	304

Table 4-22

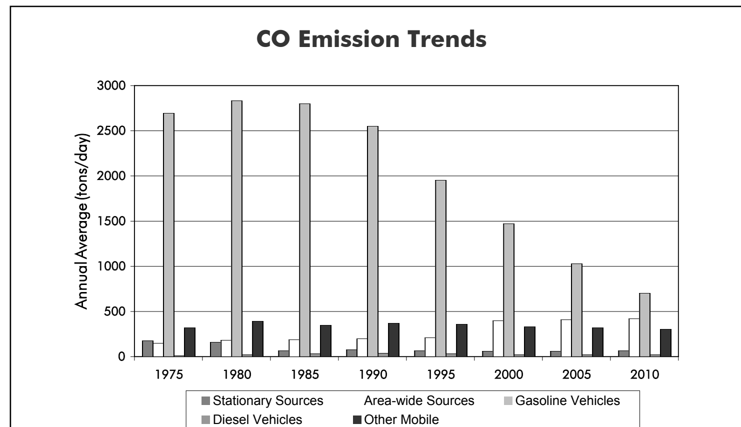

Figure 4-28

San Joaquin Valley Air Basin

Carbon Monoxide Air Quality Trend

Carbon monoxide concentrations show a fairly consistent downward trend from 1981 through 2000. Similar to other areas of the State, the trend line for the San Joaquin Valley Air Basin shows a slight increase during the late 1980s, probably related to meteorology. The maximum peak 8-hour indicator for 2000 is less than half that for 1981. Measured concentrations in the San Joaquin Valley Air Basin have not exceeded the national CO standards since 1991, and concentrations have not exceeded the State standards for the last five years. Much of the decline in ambient CO concentrations can be attributed to the introduction of clean fuels and newer, cleaner motor vehicles.

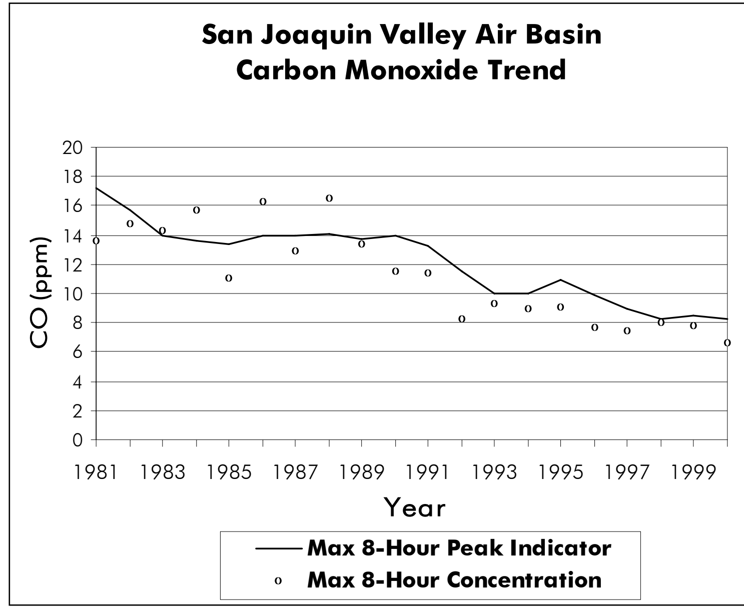

Figure 4-29

San Joaquin Valley Air Basin

Carbon Monoxide Air Quality Table

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator	17.2	15.7	13.9	13.6	13.4	13.9	13.9	14.1	13.7	13.9	13.2	11.5	10.0	10.0	10.9	9.9	9.0	8.3	8.5	8.3
Max. 1-Hr. Concentration	18.0	18.0	17.0	24.0	18.0	21.0	16.0	19.0	23.0	17.0	19.0	13.0	13.0	15.0	12.0	11.0	9.9	10.3	11.9	10.1
Max. 8-Hr. Concentration	13.6	14.8	14.3	15.7	11.0	16.3	12.9	16.5	13.4	11.5	11.4	8.3	9.3	8.9	9.1	7.7	7.5	8.0	7.8	6.6
Days Above State 8-Hr. Std.	12	9	12	7	7	13	4	5	24	10	3	0	2	0	1	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	10	8	9	6	7	11	4	6	18	9	3	0	0	0	0	0	0	0	0	0

Table 4-23

San Diego Air Basin

Introduction - Area Description

Figure 4-30

The San Diego Air Basin lies in the southwest corner of California and comprises all of San Diego County. However, the population and emissions are concentrated mainly in the western portion of the County. The air basin covers 4,260 square miles, includes about 8 percent of the State's population, and produces about 7 percent of the State's criteria pollutant emissions. Because of its southerly location and proximity to the ocean, much of the San Diego Air Basin has a relatively mild climate.

Air quality in the San Diego Air Basin is impacted not only by local emissions, but also by pollutants transported from other areas -- in particular, ozone and ozone precursor emissions transported from the South Coast Air Basin and Mexico. Although the impact of transport is particularly important on days with high ozone concentrations, transported pollutants and emissions cannot be blamed entirely for the ozone problem in the San Diego area. Studies show that emissions from the San Diego Air Basin are sufficient, on their own, to cause ozone violations.

San Diego Air Basin

Emission Trends and Forecasts

Emissions of NO_x, ROG, PM_{10}, and CO in the San Diego Air Basin have been following the statewide trends since 1975. These trends are largely due to motor vehicle controls and reductions in evaporative emissions. Mobile sources (both on-road and other) are by far the largest contributors to NO_x, ROG, and CO emissions in the San Diego Air Basin. The majority of the PM_{10} emissions are from area-wide sources.

San Diego Air Basin
Population and VMT

Growth rates in the San Diego Air Basin during the last 20 years were among the highest in the State's urban areas. The population increased 54 percent -- from over 1.9 million in 1981 to over 2.8 million in 2000. During this same time period, the number of vehicle miles traveled each day increased over 100 percent -- from about 35 million miles per day in 1981 to nearly 74 million miles per day in 2000. As in other parts of California, overall air quality in the San Diego Air Basin has improved, despite high growth rates, indicating the benefits of cleaner technologies.

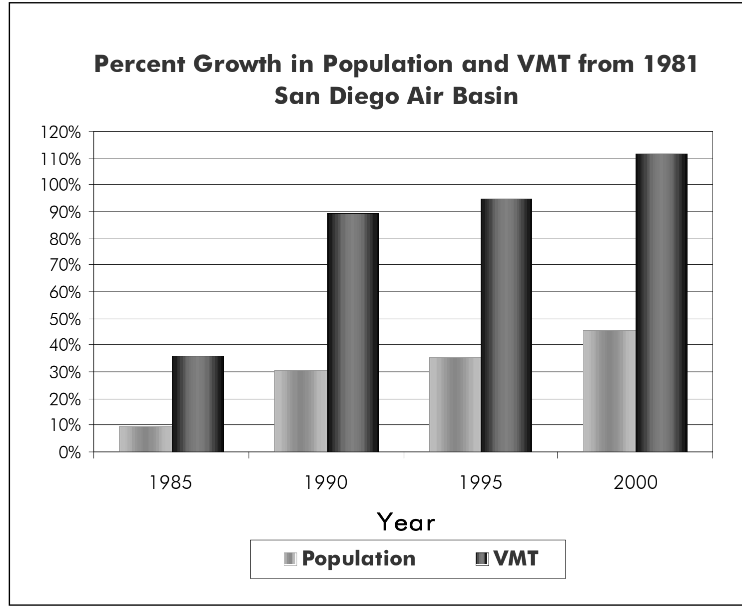

Figure 4-31

San Diego Air Basin

Ozone Precursor Emission Trends and Forecasts

Emissions of the ozone precursor NO_x remained relatively flat from 1975 to 1990, but are declining steadily from 1990 to 2010. ROG emissions have been decreasing overall since 1980. These decreases are mostly due to decreased emissions from motor vehicles, brought about by stricter motor vehicle emission standards. Stationary and area-wide source emissions of ROG have remained mostly unchanged over the last 20 years, with stricter emission standards offsetting industrial and population growth.

NO_x Emission Trends (tons/day, annual average)								
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
All Sources	***275***	***278***	***289***	***321***	***276***	***235***	***191***	***154***
Stationary Sources	46	31	17	21	19	17	16	18
Area-wide Sources	2	2	2	3	3	3	3	4
On-Road Mobile	170	176	198	216	187	149	109	77
Gasoline Vehicles	160	158	162	162	139	103	65	44
Diesel Vehicles	10	18	35	54	47	46	44	33
Other Mobile	57	69	73	81	68	66	62	55

Table 4-24

ROG Emission Trends (tons/day, annual average)								
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
All Sources	***412***	***420***	***391***	***332***	***275***	***226***	***195***	***182***
Stationary Sources	26	47	46	46	46	44	57	67
Area-wide Sources	36	42	44	47	42	43	43	46
On-Road Mobile	327	303	267	200	146	103	70	48
Gasoline Vehicles	326	302	265	197	144	101	68	47
Diesel Vehicles	1	1	2	3	3	2	2	2
Other Mobile	24	28	33	38	41	36	25	21

Table 4-25

San Diego Air Basin
Ozone Precursor Emission Trends and Forecasts

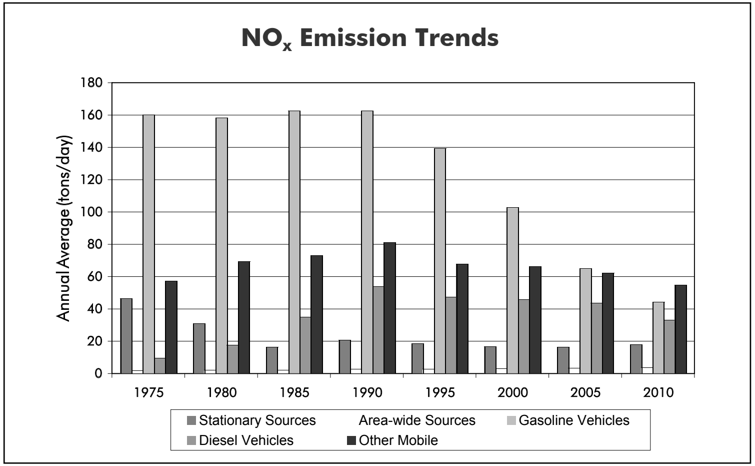

Figure 4-32

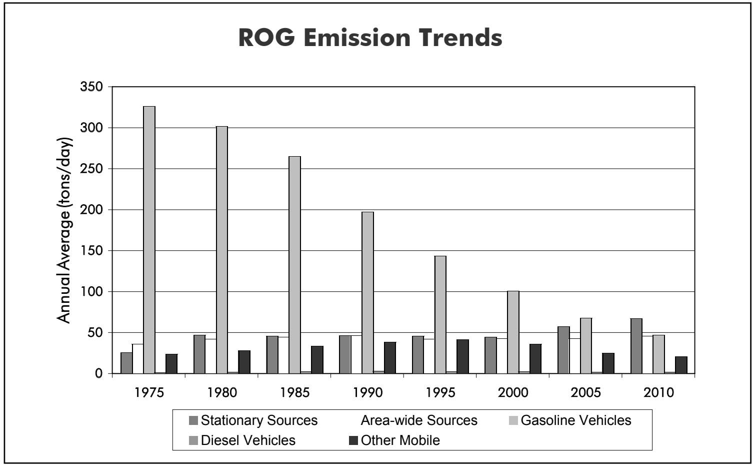

Figure 4-33

San Diego Air Basin

Ozone Air Quality Trend

Both the peak indicator and the number of days above the State and national ozone standards have decreased over the last 20 years. The peak 1-hour ozone indicator shows an overall decline of 42 percent from 1981 to 2000. The number of State and national 1-hour standard exceedance days has dropped even more. There were 192 State standard exceedance days during 1981 and 24 State standard exceedance days during 2000. This represents a decrease of about 88 percent. During 1981, there were 78 national 1-hour standard exceedance days. There were no national 1-hour standard exceedance days during 1999 or 2000. However, there were 16 national 8-hour standard exceedance days. It is clear that additional local emission controls will be needed to reach attainment of the ozone standards in the San Diego area. However, because of transport, future air quality in this area will also be affected by emission controls and growth in the South Coast Air Basin and, to some extent, Mexico.

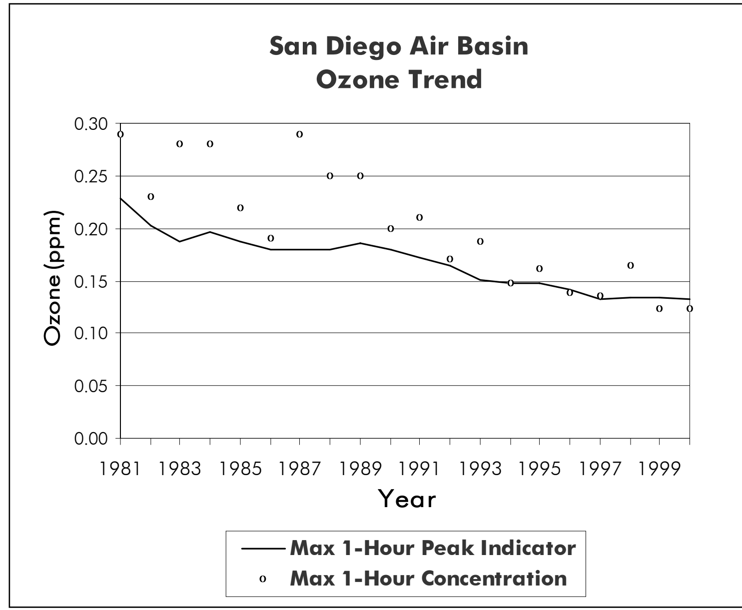

Figure 4-34

San Diego Air Basin
Ozone Air Quality Table

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator	0.228	0.203	0.188	0.197	0.188	0.179	0.179	0.179	0.186	0.180	0.172	0.164	0.150	0.147	0.148	0.142	0.132	0.134	0.134	0.132
National 1-Hr. Design Value	0.290	0.210	0.200	0.200	0.210	0.190	0.180	0.180	0.190	0.190	0.170	0.170	0.154	0.150	0.146	0.141	0.138	0.135	0.135	0.131
Nat. 8-Hr. Design Value	0.141	0.137	0.130	0.126	0.132	0.125	0.124	0.121	0.125	0.129	0.125	0.118	0.112	0.109	0.108	0.104	0.099	0.102	0.099	0.100
Maximum 1-Hr. Concentration	0.290	0.230	0.280	0.280	0.220	0.190	0.290	0.250	0.250	0.200	0.210	0.170	0.187	0.147	0.162	0.138	0.136	0.164	0.124	0.124
Max. 8-Hr. Concentration	0.206	0.162	0.176	0.207	0.168	0.143	0.196	0.156	0.193	0.145	0.145	0.133	0.154	0.121	0.122	0.117	0.112	0.141	0.100	0.106
Days Above State Standard	192	120	125	146	148	131	127	160	159	139	106	97	90	79	96	51	43	54	27	24
Days Above Nat. 1-Hr. Std.	78	47	61	51	50	42	40	45	56	39	27	19	14	9	12	2	1	9	0	0
Days Above Nat. 8-Hr. Std.	133	83	101	98	109	81	99	119	122	96	67	66	58	46	48	31	16	35	16	16

Table 4-26

San Diego Air Basin

PM_{10} Emission Trends and Forecasts

Direct emissions of PM_{10} are doubling in the San Diego Air Basin between 1975 and 2010. This increase is due to growth in emissions from area-wide sources, primarily fugitive dust from vehicle travel on unpaved and paved roads, dust from construction and demolition operations, and particulates from residential fuel combustion (including wood). The growth in these area-wide sources is primarily due to population growth and increases in vehicle miles traveled (VMT).

PM10 Emission Trends (tons/day, annual average)								
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
All Sources	***71***	***84***	***90***	***113***	***112***	***120***	***131***	***140***
Stationary Sources	17	12	5	7	8	8	6	7
Area-wide Sources	45	63	74	92	92	101	113	122
On-Road Mobile	3	3	4	5	5	5	5	5
Gasoline Vehicles	2	2	2	3	3	3	4	4
Diesel Vehicles	1	1	2	3	2	1	1	1
Other Mobile	6	7	7	8	7	7	7	6

Table 4-27

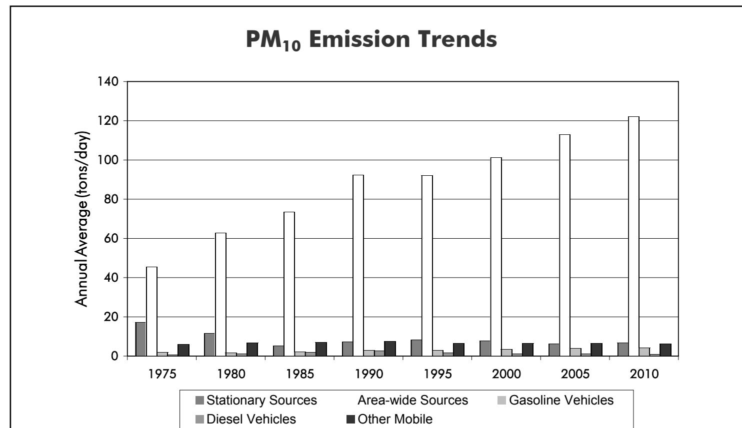

Figure 4-35

San Diego Air Basin

PM_{10} Air Quality Trend

PM_{10} concentrations in the San Diego Air Basin have changed little during the years for which reliable data are available. The maximum annual geometric mean for 2000 exceeds the State annual standard and is not much lower than it was during 1988. This apparent lack of progress is a result of monitoring that began at a new site, with higher concentrations, during 1993. The 24-hour concentrations also exceed the State standard. During 2000, the maximum 24-hour concentration was 139 µg/m^3. During 1988, there were 87 calculated State standard exceedance days, compared with 111 during 2000. Again, this apparent increase is attributable to the new site that began operating in 1993. There is a substantial amount of variability from year-to-year in the 24-hour statistics. This variability is a reflection of meteorology, the 1-in-6-day sampling schedule, and changes in monitoring location. Although ambient PM_{10} concentrations in the San Diego Air Basin are not as high as in some other areas of the State, additional emission controls will be needed to bring this area into attainment.

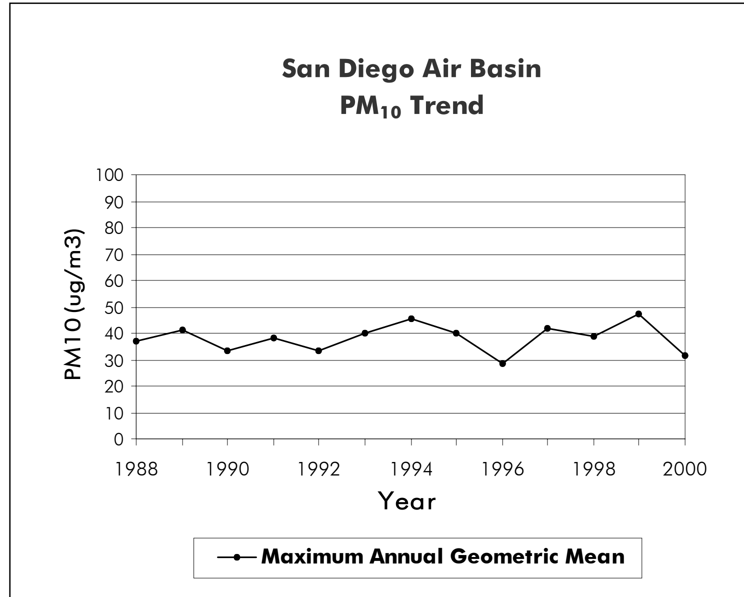

Figure 4-36

San Diego Air Basin

PM_{10} Air Quality Table

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration								81	90	115	81	67	159	129	121	93	125	89	121	139
Max. Annual Geometric Mean								36.8	41.3	33.4	38.0		40.0	45.2	39.8	28.4	41.9	38.6	47.5	31.6
Calc Days Above State 24-Hr Std								87	111	42	81	36	132	129	114	90	126	108	126	111
Calc Days Above Nat 24-Hr Std								0	0	0	0	0	6	0	0	0	0	0	0	0

Table 4-28

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San Diego Air Basin
Carbon Monoxide Emission Trends and Forecasts

CO emissions in the San Diego Air Basin follow the statewide trend of decreasing from 1985 to 2010, even though the motor vehicle miles traveled (VMT) are increasing. This is yet another example of how California's motor vehicle control program is having a positive impact on CO emissions.

CO Emission Trends (tons/day, annual average)								
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
All Sources	***3076***	***2956***	***2861***	***2468***	***1809***	***1382***	***1020***	***799***
Stationary Sources	20	21	21	25	25	40	37	39
Area-wide Sources	48	50	56	60	64	67	74	80
On-Road Mobile	2866	2704	2567	2123	1473	1048	692	472
Gasoline Vehicles	2863	2699	2557	2109	1461	1038	682	465
Diesel Vehicles	3	5	10	14	12	10	9	8
Other Mobile	142	181	217	260	248	227	217	208

Table 4-29

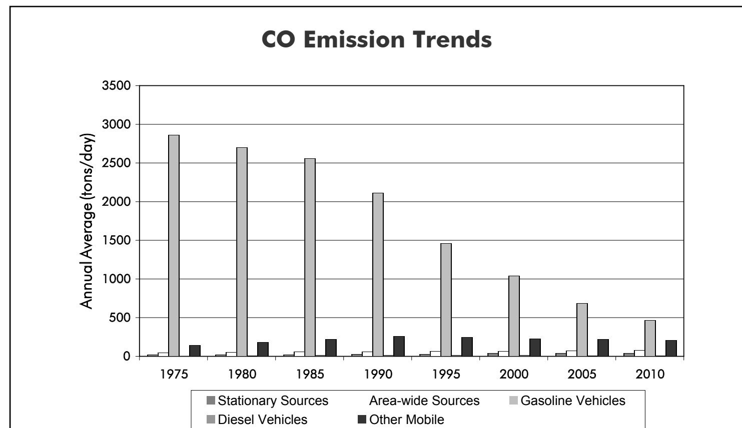

Figure 4-37

San Diego Air Basin

Carbon Monoxide Air Quality Trend

Peak 8-hour carbon monoxide concentrations in the San Diego Air Basin decreased substantially over the trend period -- a 56 percent decrease from 1981 to 2000. As a result of these decreases, the national CO standards have not been exceeded in the San Diego Air Basin since 1989. The last exceedance of the State standards occurred during 1990.

With existing and anticipated motor vehicle and clean fuels regulations, ambient CO concentrations should continue to decline. This should be sufficient to maintain a healthful level of carbon monoxide in this area.

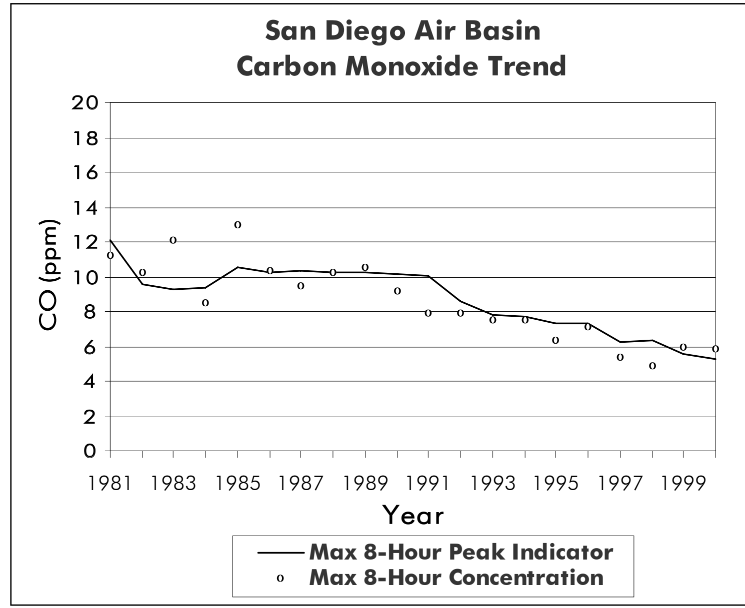

Figure 4-38

San Diego Air Basin

Carbon Monoxide Air Quality Table

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator	12.1	9.5	9.3	9.4	10.6	10.2	10.4	10.2	10.3	10.2	10.0	8.6	7.8	7.7	7.3	7.3	6.3	6.3	5.6	5.3
Max. 1-Hr. Concentration	15.0	15.0	16.0	16.0	17.0	16.0	14.0	17.0	17.0	18.0	14.0	14.0	11.4	11.0	9.9	12.4	9.3	10.2	9.9	9.3
Max. 8-Hr. Concentration	11.3	10.3	12.1	8.5	13.0	10.4	9.4	10.3	10.5	9.1	7.9	7.9	7.5	7.5	6.3	7.1	5.4	4.8	6.0	5.9
Days Above State 8-Hr. Std.	1	1	1	0	5	2	1	5	6	1	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	1	1	1	0	3	1	0	2	5	0	0	0	0	0	0	0	0	0	0	0

Table 4-30

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San Diego Air Basin

Oxides of Nitrogen Emission Trends and Forecasts

NO_x (and nitrogen dioxide) emissions in the San Diego Air Basin follow the statewide trend of declining from 1990 to 2010. The continued adoption of more stringent motor vehicle and stationary source emission standards should continue to reduce nitrogen dioxide emissions.

NO_x Emission Trends (tons/day, annual average)								
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
All Sources	***275***	***278***	***289***	***321***	***276***	***235***	***191***	***154***
Stationary Sources	46	31	17	21	19	17	16	18
Area-wide Sources	2	2	2	3	3	3	3	4
On-Road Mobile	170	176	198	216	187	149	109	77
Gasoline Vehicles	160	158	162	162	139	103	65	44
Diesel Vehicles	10	18	35	54	47	46	44	33
Other Mobile	57	69	73	81	68	66	62	55

Table 4-31

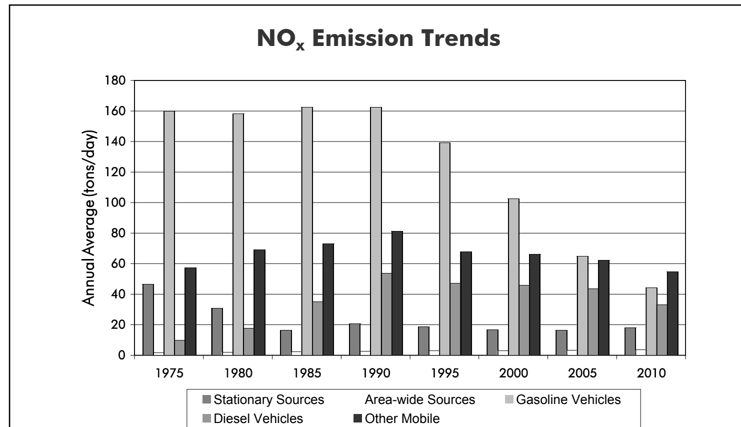

Figure 4-39

San Diego Air Basin

Nitrogen Dioxide Air Quality Trend

In the past, the San Diego Air Basin had a nitrogen dioxide problem. Maximum 1-hour concentrations during the 1980s occasionally exceeded the ambient air quality standards. However, ambient concentrations are now well below the levels of both the State and national standards. Data show that the maximum peak 1-hour indicator decreased 52 percent from 1981 to 2000, and the San Diego Air Basin is in attainment for the nitrogen dioxide standards.

Because oxides of nitrogen (NO_x) emissions contribute to ozone, as well as to nitrogen dioxide, many of the ozone control measures help reduce ambient NO_2 concentrations. Furthermore, NO_x emission controls are a critical part of the ozone control strategy and are not expected to be relaxed in the future. As a result, these controls should assure continued attainment of the State and national nitrogen dioxide standards.

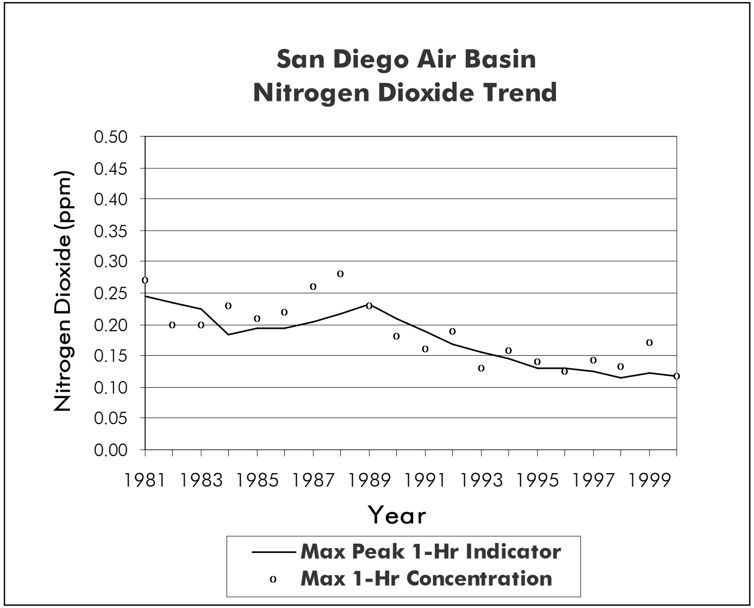

Figure 4-40

San Diego Air Basin

Nitrogen Dioxide Air Quality Table

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator	0.245	0.233	0.225	0.183	0.193	0.193	0.203	0.216	0.233	0.210	0.189	0.169	0.155	0.145	0.129	0.129	0.126	0.116	0.122	0.117
Max. 1-Hr. Concentration	0.270	0.200	0.200	0.230	0.210	0.220	0.260	0.280	0.230	0.180	0.160	0.190	0.130	0.157	0.140	0.124	0.142	0.132	0.172	0.117
Max. Annual Average	0.024	0.030	0.027	0.031	0.032	0.030	0.032	0.035	0.031	0.029	0.029	0.027	0.023	0.024	0.026	0.022	0.024	0.023	0.026	0.024

Table 4-32

Sacramento Valley Air Basin

Introduction - Area Description

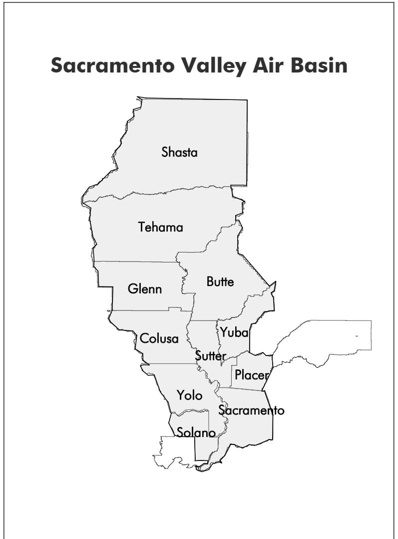

Figure 4-41

The Sacramento Valley Air Basin is home to California's capital. Located in the northern portion of the Central Valley, the Sacramento Valley Air Basin includes Butte, Colusa, Glenn, Sacramento, Shasta, Sutter, Tehama, Yolo, and Yuba counties, the western urbanized portion of Placer County, and the eastern portion of Solano County. The Sacramento Valley Air Basin occupies 15,043 square miles and has a population of more than two million people. Because of its inland location, the climate of the Sacramento Valley Air Basin is more extreme than the climate in the San Francisco Bay Area Air Basin or South Coast Air Basin. The winters are generally cool and wet, while the summers are hot and dry.

Emissions from the Sacramento metropolitan area dominate the emission inventory for the Sacramento Valley Air Basin, and on-road motor vehicles are the primary source of emissions in the metropolitan area. While pollutant concentrations have generally declined over the years, additional regulations will be needed to attain the State and national ambient air quality standards in this air basin.

Sacramento Valley Air Basin

Emission Trends and Forecasts

The emission levels in the Sacramento Valley Air Basin are trending downward from 1980 to 2010 for NO_x and ROG, and downward from 1975 to 2010 for CO. The decreases in NO_x, ROG, and CO are largely due to motor vehicle controls and reductions in evaporative emissions. Mobile sources (both on-road and other) are by far the largest contributors to NO_x, ROG, and CO emissions in the Sacramento Valley Air Basin. PM_{10} emissions are increasing from 1995 to 2010.

Sacramento Valley Air Basin

Population and VMT

Between 1981 and 2000, population in the Sacramento Valley Air Basin grew at a higher rate than the statewide average -- a 51 percent increase compared with a 39 percent increase statewide. Meanwhile, during this same period, the increase in the number of vehicle miles traveled each day was about the same as the overall statewide value -- a 95 percent increase in the Sacramento Valley Air Basin compared with a 91 percent increase statewide. While the actual population and VMT totals for the Sacramento Valley Air Basin are much smaller than those for the South Coast Air Basin and San Francisco Bay Area Air Basin, they are important because motor vehicles are a significant source of emissions in the Sacramento Valley Air Basin.

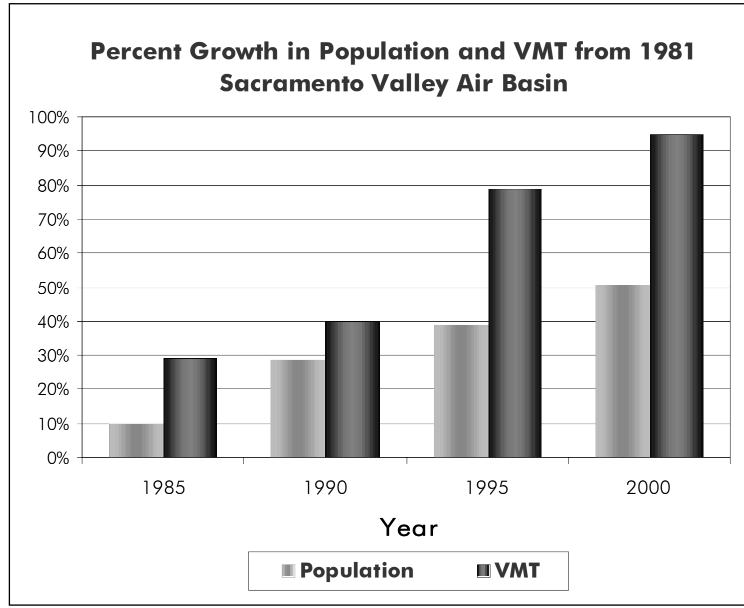

Figure 4-42

Sacramento Valley Air Basin
Ozone Precursor Emission Trends and Forecasts

Emissions of NO_x show a steady decrease from 1990 to 2010. On-road motor vehicles and other mobile sources are by far the largest contributors to NO_x emissions. More stringent mobile source emission standards and cleaner burning fuels have largely contributed to the decline in NO_x emissions. ROG emissions have been decreasing for the last 20 years due to more stringent motor vehicle standards and new rules for control of ROG from various industrial coating and solvent operations.

NO_x Emission Trends (tons/day, annual average)

Emission Source	1975	1980	1985	1990	1995	2000	2005	2010
All Sources	***312***	***360***	***340***	***361***	***315***	***275***	***229***	***184***
Stationary Sources	26	25	18	29	33	27	32	34
Area-wide Sources	4	5	5	6	7	7	8	9
On-Road Mobile	164	189	205	216	184	153	113	79
Gasoline Vehicles	137	149	147	137	120	90	61	42
Diesel Vehicles	27	40	59	79	64	63	52	37
Other Mobile	**118**	**142**	**111**	**110**	**92**	**88**	**76**	**62**

Table 4-33

ROG Emission Trends (tons/day, annual average)

Emission Source	1975	1980	1985	1990	1995	2000	2005	2010
All Sources	***413***	***437***	***407***	***358***	***311***	***268***	***232***	***213***
Stationary Sources	59	61	62	53	51	50	51	56
Area-wide Sources	66	76	68	76	69	71	73	78
On-Road Mobile	260	264	240	185	142	104	74	51
Gasoline Vehicles	258	261	236	181	139	101	72	50
Diesel Vehicles	2	3	4	4	3	3	2	2
Other Mobile	28	36	38	43	48	44	33	27

Table 4-34

Sacramento Valley Air Basin
Ozone Precursor Emission Trends and Forecasts

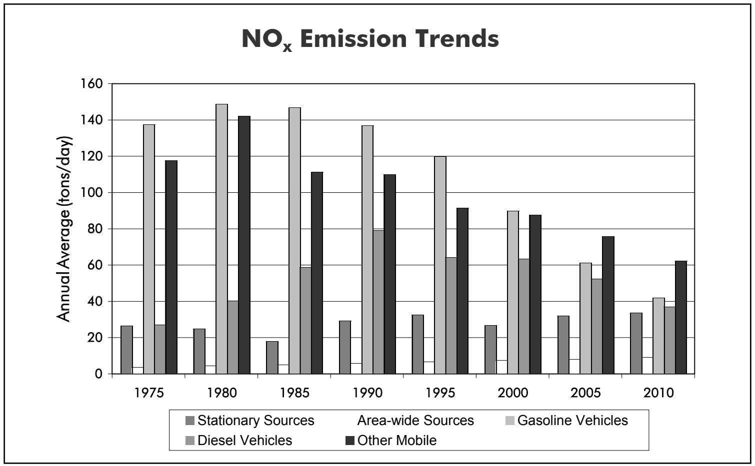

Figure 4-43

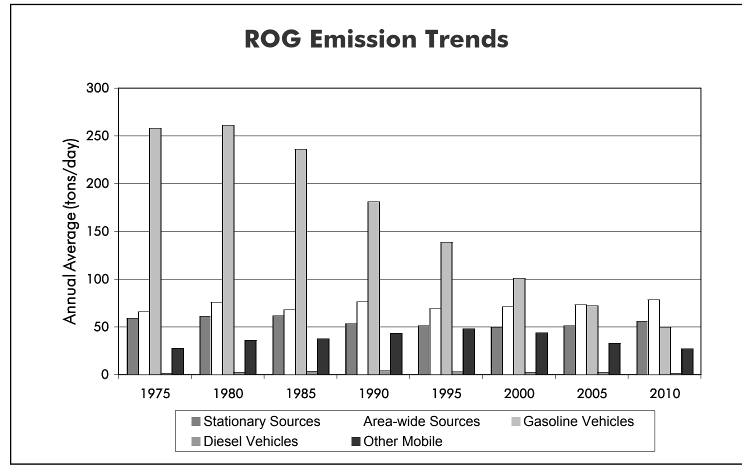

Figure 4-44

Sacramento Valley Air Basin

Ozone Air Quality Trend

Peak ozone values in the Sacramento Valley Air Basin have not declined as quickly over the last several years as they have in other urban areas. The maximum peak 1-hour values remained fairly constant during the 1980s. Since 1988, the peak values have decreased slightly, and the overall decline for the 20-year period is about 15 percent. Looking at the number of days above the State and national standards, the trend is much more variable. However, the number of exceedance days has declined since 1988. The maximum measured 1-hour concentrations have also decreased, but at a lower overall rate. The maximum 1-hour concentration during 2000 was 0.14 ppm. Based on the data, it is apparent that additional emission controls will be needed to bring the area into attainment for the State and national ozone standards.

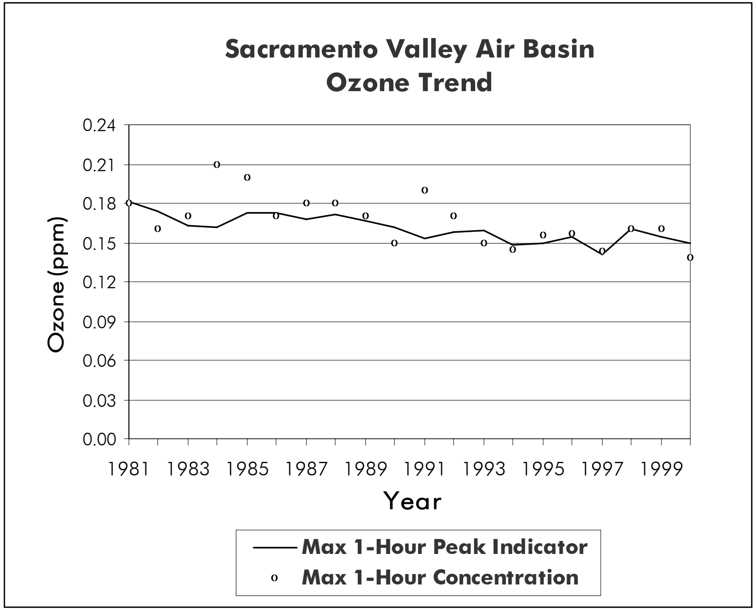

Figure 4-45

Sacramento Valley Air Basin

Ozone Air Quality Table

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator	0.181	0.174	0.163	0.162	0.173	0.173	0.168	0.171	0.166	0.162	0.153	0.158	0.159	0.148	0.149	0.154	0.141	0.161	0.154	0.153
National 1-Hr. Design Value	0.170	0.160	0.160	0.180	0.180	0.180	0.160	0.160	0.160	0.160	0.150	0.150	0.150	0.143	0.145	0.145	0.133	0.148	0.148	0.148
Nat. 8-Hr. Design Value	0.115	0.112	0.114	0.115	0.118	0.118	0.114	0.114	0.114	0.107	0.105	0.105	0.110	0.104	0.106	0.106	0.097	0.097	0.101	0.105
Maximum 1-Hr. Concentration	0.180	0.160	0.170	0.210	0.200	0.170	0.180	0.180	0.170	0.150	0.190	0.170	0.150	0.145	0.156	0.157	0.143	0.160	0.160	0.138
Max. 8-Hr. Concentration	0.142	0.133	0.125	0.138	0.161	0.125	0.127	0.130	0.133	0.127	0.140	0.122	0.120	0.121	0.128	0.126	0.107	0.137	0.129	0.108
Days Above State Standard	78	66	62	64	59	66	94	98	68	50	68	74	34	60	50	58	25	62	59	42
Days Above Nat. 1-Hr. Std.	22	17	15	23	19	24	24	35	8	16	14	14	7	9	11	9	3	14	7	5
Days Above Nat. 8-Hr. Std.	63	46	44	46	42	50	73	68	37	44	60	56	22	48	40	44	15	60	43	35

Table 4-35

Sacramento Valley Air Basin

PM_{10} Emission Trends and Forecasts

Direct emissions of PM_{10} are increasing in the Sacramento Valley Air Basin between 1995 and 2010. This increase is due to growth in emissions from area-wide sources, primarily fugitive dust from paved and unpaved roads, fugitive dust from construction and demolition, and particulates from residential fuel combustion. As also observed in other areas of the State, these area-wide PM_{10} emissions have gone up as a result of population growth and increased vehicle travel. Emissions of directly emitted PM_{10} from mobile sources and stationary sources in the Sacramento Valley Air Basin have remained relatively steady.

PM10 Emission Trends (tons/day, annual average)								
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
All Sources	***218***	***236***	***215***	***246***	***240***	***253***	***275***	***297***
Stationary Sources	22	16	14	16	15	15	16	17
Area-wide Sources	186	209	191	217	216	229	249	270
On-Road Mobile	3	3	4	5	4	4	4	4
Gasoline Vehicles	1	1	2	2	2	3	3	3
Diesel Vehicles	1	2	3	4	2	2	1	1
Other Mobile	7	8	7	7	6	6	6	5

Table 4-36

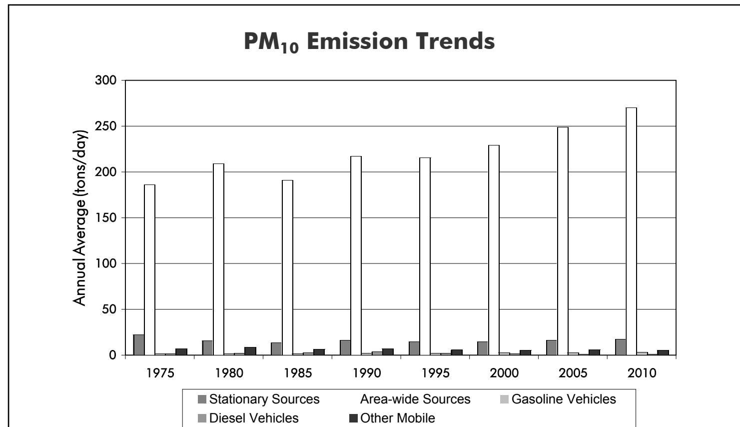

Figure 4-46

Sacramento Valley Air Basin

PM_{10} Air Quality Trend

The maximum annual geometric mean PM_{10} concentrations in the Sacramento Valley Air Basin show a fairly steady decline over the trend period. The maximum annual geometric mean shows a decrease of about 33 percent from 1988 to 2000, when the value was below the level of the State annual standard. The number of exceedance days also decreased. During 1988, there were 120 calculated exceedance days of the State 24-hour standard, compared with 45 days during 2000. Because many of the sources that contribute to ozone also contribute to PM_{10}, future ozone emission controls should improve PM_{10} air quality.

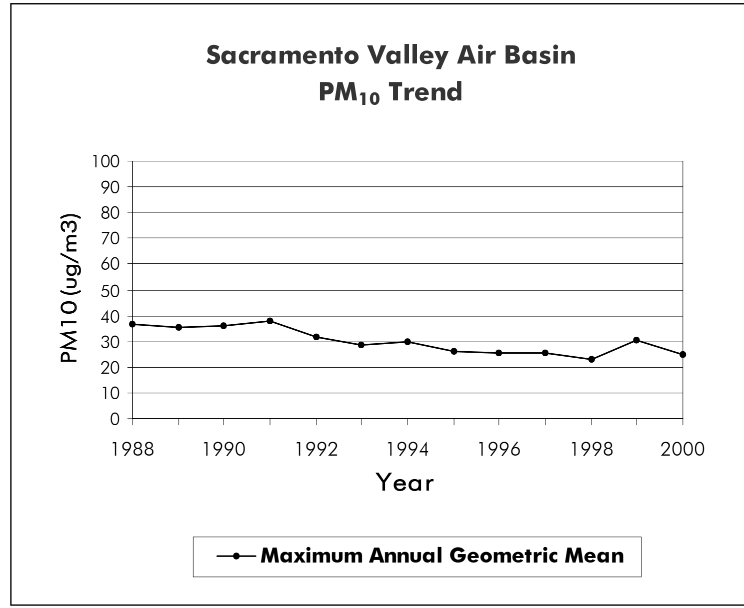

Figure 4-47

Sacramento Valley Air Basin

PM_{10} Air Quality Table

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration								115	139	153	136	111	110	154	145	98	126	130	179	86
Max. Annual Geometric Mean								36.7	35.5	36.0	37.7	31.4	28.8	30.0	26.3	25.5	25.3	22.8	30.3	24.7
Calc Days Above State 24-Hr Std								120	84	93	114	96	60	36	66	42	24	60	66	45
Calc Days Above Nat 24-Hr Std								0	0	0	0	0	0	0	0	0	0	0	6	0

Table 4-37

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Sacramento Valley Air Basin

Carbon Monoxide Emission Trends and Forecasts

Emissions of CO are declining in the Sacramento Valley Air Basin between 1980 and 2010. Motor vehicles are the largest source of CO emissions. With the introduction of new automotive emission controls to meet more stringent emission standards, motor vehicle CO emissions have been declining since 1980, despite increases in vehicle miles traveled (VMT). Stationary and area-wide source CO emissions have remained relatively steady, with additional emission controls offsetting growth.

CO Emission Trends (tons/day, annual average)								
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
All Sources	**2865**	**2968**	**2898**	**2612**	**2028**	**1637**	**1348**	**1149**
Stationary Sources	25	25	12	45	34	33	38	41
Area-wide Sources	436	402	426	429	394	370	394	422
On-Road Mobile	2234	2321	2233	1868	1335	984	677	460
Gasoline Vehicles	2228	2310	2217	1849	1320	972	667	452
Diesel Vehicles	7	10	15	19	15	12	10	8
Other Mobile	170	220	227	269	266	250	239	227

Table 4-38

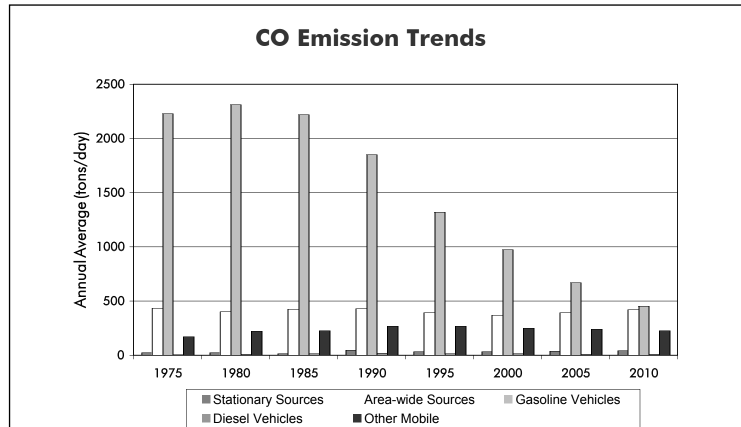

Figure 4-48

Sacramento Valley Air Basin

Carbon Monoxide Air Quality Trend

The maximum peak 8-hour carbon monoxide trend for the Sacramento Valley Air Basin was relatively flat from 1981 to 1991, with some year-to-year variability that was probably caused by meteorology. Since 1991, concentrations have decreased substantially. The 2000 value was about 53 percent lower than the 1991 value. The number of days above the State and national standards is even more variable. However, these indicators also show an overall downward trend. The national CO standards have not been exceeded since 1991, and the State standards were last exceeded in 1993. Much of the decline in ambient carbon monoxide concentrations is attributable to the introduction of cleaner fuels and newer, cleaner motor vehicles. These controls will help keep the area in attainment for both the State and national CO standards.

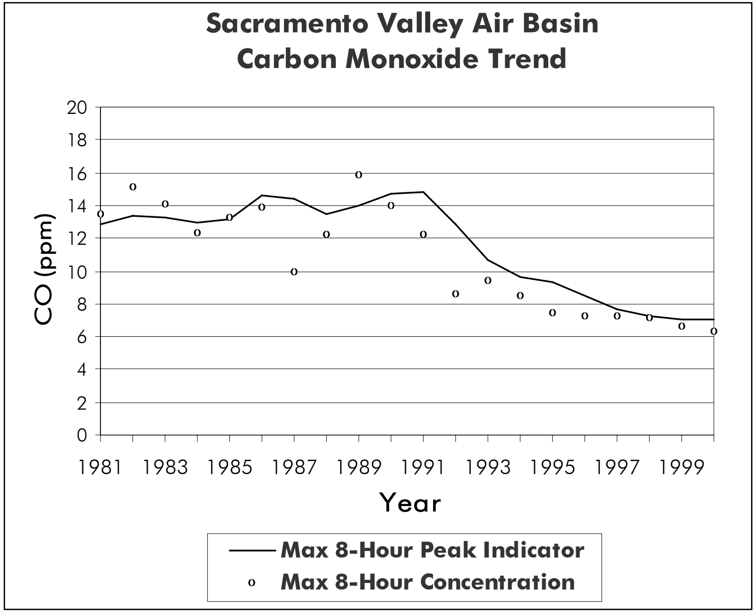

Figure 4-49

Sacramento Valley Air Basin

Carbon Monoxide Air Quality Table

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator	12.9	13.4	13.2	13.0	13.2	14.6	14.4	13.4	14.0	14.7	14.8	12.9	10.7	9.6	9.3	8.5	7.7	7.3	7.0	7.0
Max. 1-Hr. Concentration	17.0	17.0	19.0	18.0	17.0	20.0	15.0	17.0	18.0	17.0	15.0	14.0	12.0	10.8	9.8	8.7	9.5	7.9	7.7	10.0
Max. 8-Hr. Concentration	13.5	15.1	14.1	12.4	13.3	13.9	10.0	12.3	15.9	14.0	12.3	8.6	9.4	8.4	7.4	7.2	7.2	7.1	6.6	6.3
Days Above State 8-Hr. Std.	7	11	6	6	12	13	5	12	22	14	9	0	2	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	7	9	4	5	12	12	3	9	22	12	6	0	0	0	0	0	0	0	0	0

Table 4-39

Chapter 5

Toxic Air Contaminant Emissions, Air Quality, and Health Risk

Introduction

This chapter presents a summary of the emissions and air quality data available for selected toxic air contaminants, or TACs. The Health and Safety Code defines a TAC as an air pollutant which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health. The summary information includes available data for the ten TACs posing the greatest health risk in California, based primarily on ambient air quality data. These TACs are acetaldehyde, benzene, 1,3-butadiene, carbon tetrachloride, chromium (hexavalent), *para*-dichlorobenzene, formaldehyde, methylene chloride, perchloroethylene, and diesel particulate matter (diesel PM). Information is summarized for the State as a whole and for each of the five most populated air basins. It is important to note that the summarized data reflect a spatial average, and the ambient concentrations and health risks for individual locations may be higher or lower.

This section provides some general background information on toxic air contaminants, their emissions, and air quality. The following section provides information on a statewide level. The information includes summaries of statewide emissions, statewide annual average concentrations (calculated as a mean of the monthly means) and statewide average health risks, for the ten selected TACs. The final sections of this chapter provide similar information for California's five most populated air basins: the South Coast Air Basin, the San Francisco Bay Area Air Basin, the San Joaquin Valley Air Basin, the San Diego Air Basin, and the Sacramento Valley Air Basin (concentration and health risk data for individual sites within these air basins are found in Appendix C).

It is important to note that the information presented in this chapter reflects only the ten TACs for which available data indicate the most substantial health risk. There may be other TACs that pose a substantial risk, but for which data are not available (dioxins, for example), or which have not been identified as a concern. Additional information about interpreting the toxic air contaminant air quality data can be found in Chapter 1.

Sources of Toxic Air Contaminant Emissions in California. Similar to the criteria pollutants, toxic air contaminants are emitted from stationary sources, area-wide sources, and mobile sources. The ARB developed the stationary source emissions inventory in cooperation with affected industries and the air pollution control and air quality management districts (districts) as part of Assembly Bill 2588, the Air Toxics Hot Spots Information and Assessment Act of 1987 (Hot Spots Program). The ARB developed the emission estimates for area-wide sources and mobile sources.

Emissions of the selected TACs are reported on a statewide basis and for the highest-emitting ten counties in California. Emissions are also included for the five most populated air basins. In general, the inventory base year is 2001. Note, however, that the stationary source emissions inventory represents the best available information for the emission source, although the data may not have been specifically collected for 2001.

Air Quality Monitoring for Toxic Air Contaminants. The ARB maintains a statwide air quality monitoring network for toxic air contaminants. The network was originally designed to measure selected substances in ambient air to determine if the levels were sufficiently high to be of concern. As a result of this monitoring, the ARB has determined atmospheric concentrations of

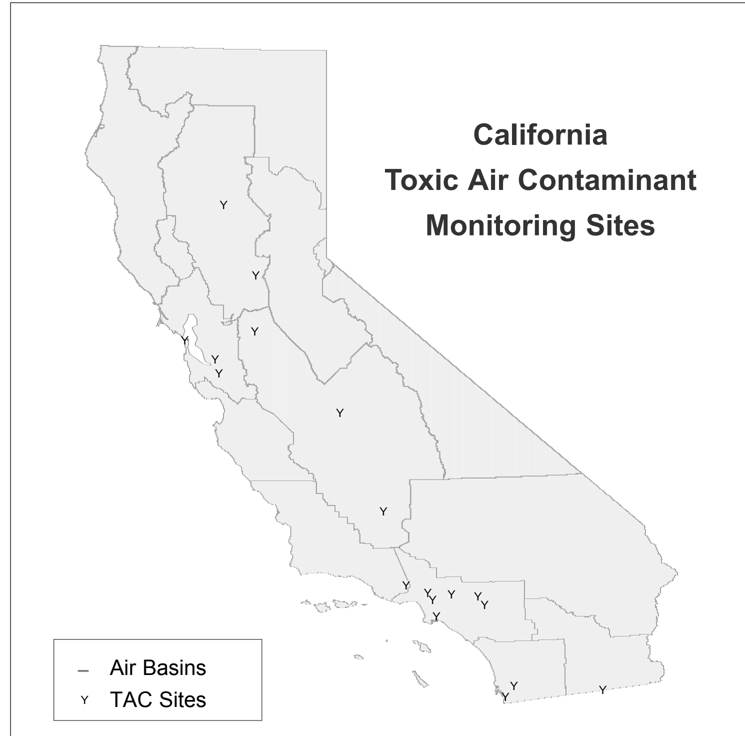

Figure 5-1

over 60 individual TACs. As shown in Figure 5-1, the ARB currently maintains a network of 18 air quality monitoring stations, measuring ambient concentrations of 58 TACs. The number of sites is smaller than in previous years and reflects the closure of several sites during 2000. By closing these sites, additional resources were made available to support monitoring for the ARB community health program. The sites selected for closure generally showed "average" concentrations, thereby having a small overall impact on the statewide annual averages. Other factors considered in selecting sites included the total number of sites in the area and the continuity of the data record.

TAC samples are generally collected once every 12 days, throughout the year. This results in 20,000 to 35,000 separate TAC measurements annually. The TAC data are typically sampled, analyzed, and reported as 24-hour averages. These 24-hour averages provide the basis for the annual average concentrations. These annual average concentrations are then used to support statewide risk assessment.

The TAC monitoring network is currently designed to provide air quality data on general population exposures. Therefore, the data do not provide information on localized impacts, often referred to as near-source or neighborhood exposures. The ARB is currently participating in several studies to address localized impacts and community health issues. For example, during October 1999, the ARB initiated a monitoring and evaluation study in the Barrio Logan and Logan Heights neighborhoods of San Diego. In addition, the ARB is conducting monitoring in five other communities in support of the children's health program. Efforts such as these will supplement our existing statewide TAC monitoring network, which was designed for regional rather than neighborhood assessments. Information from these and other studies may be incorporated in subsequent editions of this almanac.

The ambient TAC air quality trends included in this chapter are based on ambient data collected during 1990 through 2000. At this time, there are no available ambient air quality data for diesel particulate matter. However, the ARB has made some estimates of ambient diesel particulate matter concentrations, based on receptor modeling techniques. These estimates are included for comparison.

Statewide Health Risk and Community Health. In this almanac, health risk is presented on a pollutant-by-pollutant basis and on a cumulative basis, with a focus on cancer risk. Because the monitoring data represent general population exposures, the risk estimates represent general population impacts. Localized impacts may involve exposure to different toxic air contaminants or higher concentrations than those represented by the air monitoring data. The next challenge is to better characterize community health risks by focusing on localized impacts. Future editions of the almanac will include this type of information, as it becomes available. In addition, the focus of this almanac is only on cancer risks. Future editions may include data for non-cancer risks, which may be more significant on a localized basis than on a general population exposure basis.

The cancer risk estimates presented in this almanac are calculated using an annual average concentration multiplied by a unit risk factor. The unit risk factor is expressed as the probability, or chance, of contracting cancer as a result of constant exposure to an ambient concentration of 1 microgram per cubic meter over a 70-year lifetime. The potential impacts for cancer are expressed as the chance of contracting cancer (or excess cancer cases) per million people exposed over a 70-year period. Table 5-1 lists the unit risk factor for each of the ten TACs presented in this almanac. The factors reflect only the inhalation pathway.

Additional Information. Additional emissions and air quality data for the ten TACs in this almanac, as well as many other TACs may be found by accessing the ARB website at *www.arb.ca.gov/html/aqe&m.htm*. The web data are updated periodically, as new information becomes available. More detailed information on the health effects of these compounds, as well as many other TACs, can be found in an ARB report entitled: "*Toxic Air Contaminant Identification List - Summaries*" (September 1997). This report can be obtained from the ARB Public Information Office or by accessing the ARB website.

Toxic Air Contaminant Unit Risk Factors

Toxic Air Contaminant	Unit Risk/Million People*
Acetaldehyde	**2.7**
Benzene	**29**
1,3-Butadiene	**170**
Carbon Tetrachloride	**42**
Chromium (Hexavalent)	**150,000**
***para*-Dichlorobenzene**	**11**
Formaldehyde	**6**
Methylene Chloride	**1**
Perchloroethylene	**5.9**
Diesel Particulate Matter	**300****

* The Unit Risk represents the number of excess cancers per million people per microgram per cubic meter TAC concentration over a 70-year, lifetime exposure.

** A diesel particulate matter unit risk value of 300 is used as a reasonable estimate in the *"Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles"* (ARB, October 2000).

Table 5-1

Acetaldehyde

2001 Statewide Emission Inventory

Acetaldehyde is a federal hazardous air pollutant (HAP). The ARB identified acetaldehyde as a TAC in April 1993 under Assembly Bill 2728. This bill required the ARB to identify all federal HAPs as TACs. In California, acetaldehyde is identified as a carcinogen. This compound also causes chronic non-cancer toxicity in the respiratory system.

Acetaldehyde		
Emissions Source	**tons/year**	**Percent**
Stationary Sources	253	3%
Area-wide Sources	2007	24%
On-Road Mobile	2073	25%
Gasoline Vehicles	1178	14%
Diesel Vehicles	895	11%
Other Mobile	3905	47%
Natural Sources	0	0%
Total Statewide	***8239***	***100%***

Table 5-2

Acetaldehyde is both directly emitted into the atmosphere and formed in the atmosphere as a result of photochemical oxidation. Sources of acetaldehyde include emissions from combustion processes such as exhaust from mobile sources and fuel combustion from stationary internal combustion engines, boilers, and process heaters. In California, photochemical oxidation is the largest source of acetaldehyde concentrations in the ambient air. Approximately 25 percent of the statewide acetaldehyde emissions can be attributed to on-road motor vehicles, with an additional 47 percent attributed to other mobile sources such as construction and mining equipment, aircraft, recreational boats, and agricultural equipment. Area-wide sources of emissions, which contribute 24 percent of the statewide acetaldehyde emissions, include the burning of wood in residential fireplaces and wood stoves. Stationary sources contribute 3 percent of the statewide acetaldehyde emissions. The primary stationary sources are manufacturers of miscellaneous food and kindred products and crude oil and natural gas mining. The emissions from these sources are from fuel combustion.

2001 Top Ten Counties - Acetaldehyde

The top ten counties account for approximately 49 percent of the statewide acetaldehyde emissions. The South Coast Air Basin has four of the top ten counties: South Coast portion of Los Angeles County (14 percent of the emissions of acetaldehyde statewide), Orange County (5 percent), South Coast portion of San Bernardino County (3 percent), and South Coast portion of Riverside County (3 percent). Collectively, approximately 25 percent of statewide acetaldehyde emissions occur in the South Coast Air Basin. San Diego County accounts for approximately 7 percent. The five other counties in the top ten for acetaldehyde emissions are: Alameda, Kern, Santa Clara, Fresno, and Sacramento. These five counties account for approximately 17 percent of statewide acetaldehyde emissions.

Acetaldehyde			
County	**Air Basin**	**tons/year**	**Percent**
Los Angeles	South Coast	1166	14%
San Diego	San Diego	567	7%
Orange	South Coast	422	5%
Alameda	San Francisco Bay Area	311	4%
Kern	San Joaquin Valley	290	4%
Santa Clara	San Francisco Bay Area	278	3%
Fresno	San Joaquin Valley	269	3%
San Bernardino	South Coast	253	3%
Sacramento	Sacramento Valley	241	3%
Riverside	South Coast	221	3%

Figure 5-3

Acetaldehyde

Air Quality and Health Risk

The ARB routinely monitors acetaldehyde concentrations in the ambient air at its network of toxic monitoring sites. The trend graph for acetaldehyde, shown in Figure 5-2, shows a lot of variability. However, there is a general drop in ambient concentrations and health risk during 1990 through 1995. Values show a substantial increase during 1996, and then a variable trend, with an overall decrease, through 2000. Although data are shown for all years during 1990 through 2000, the values prior to 1996 are uncertain because the ARB analyzed ambient samples using a method that underestimated the actual concentrations. A method change in 1996 corrected this bias. However, the ARB was not able to develop a correction factor for the earlier data. Although the concentrations and health risk values for years prior to 1996 are lower than expected, they are included here for completeness.

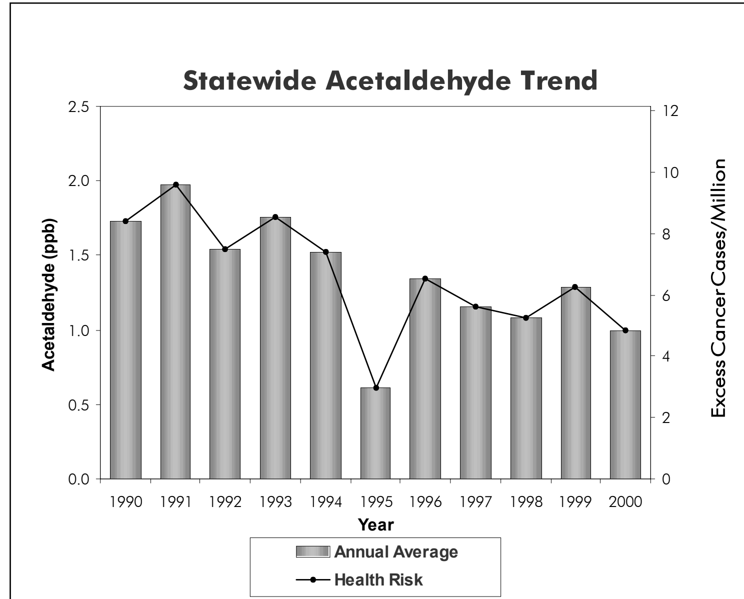

Figure 5-2

Based on the statewide annual averages for the five years with consistent data, 1996 through 2000, acetaldehyde concentrations and associated health risk decreased by about 25 percent. On an individual basis, the health risks from acetaldehyde alone are much lower than they are for some of the other toxic air contaminants. In fact, considering the ten compounds presented in this almanac, the health risk from acetaldehyde alone ranks eighth out of ten. During 2000, there was an estimated chance of 5 excess cancer cases per million people. However, as with all air pollutants, the health risk is not spread evenly throughout the State, and it is important to remember that the data reflect statewide averages. They do not consider local impacts. Therefore, some Californians may be exposed to near-source, or "hot spot" concentrations of acetaldehyde which are above the statewide annual average concentrations. "Hot spot" exposure may increase the potential cancer risk to individuals living near large combustion sources. Information collected under the Assembly Bill 2588 air toxics "hot spots" emission reporting program will be used during the risk management phase to help determine the priority and need for control of sources of acetaldehyde. Another thing to consider is the fact that the statewide averages reflect ambient outdoor concentrations. In general, acetaldehyde concentrations are higher indoors than outdoors, due in part to the abundance of combustion sources such as cigarettes, fireplaces, and woodstoves.

Acetaldehyde is directly emitted and also occurs as a result of the photochemical oxidation of reactive organic gases (ROG). Over the years, the emission standards for new vehicles have resulted in steady declines in vehicular ROG emissions, including acetaldehyde, and NO_x emissions. Further reductions in ROG and NO_x are expected to result in a decline in secondary acetaldehyde due to vehicular emissions. Declines are expected to continue because of the adopted low emission vehicle (LEV) emission standards. Additionally, the primary directly emitted acetaldehyde, also a reactive organic gas, is expected to decline.

Benzene

2001 Statewide Emission Inventory

Benzene is highly carcinogenic and occurs throughout California. The ARB identified benzene as a TAC in January 1985 under California's TAC program (Assembly Bill 1807). In addition to being a carcinogen, benzene also has non-cancer health impacts. Brief inhalation exposure to high concentrations can cause central nervous system depression. Acute effects include central nervous system symptoms of nausea, tremors, drowsiness, dizziness, headache, intoxication, and unconsciousness.

Current estimates show that approximately 61 percent of the benzene emitted in California comes from motor vehicles, including evaporative leakage and unburned fuel exhaust. The predominant sources of total benzene emissions in the atmosphere are gasoline fugitive emissions and gasoline motor vehicle exhaust. Approximately 61 percent of the statewide benzene emissions can be attributed to on-road motor vehicles, with an additional 21 percent attributed to other mobile sources such as recreational boats, off-road recreational vehicles, and lawn and garden equipment. Currently, the benzene content of gasoline is less than 1 percent. Some of the benzene in the fuel is emitted from vehicles as unburned fuel. Benzene is also formed as a partial combustion product of larger aromatic fuel components. Industry-related stationary sources contribute 6 percent and area-wide sources contribute 12 percent of the statewide benzene emissions. The primary stationary sources of reported benzene emissions are crude petroleum and natural gas mining,

Benzene		
Emissions Source	**tons/year**	**Percent**
Stationary Sources	1319	6%
Area-wide Sources	2672	12%
On-Road Mobile	13453	61%
Gasoline Vehicles	13209	60%
Diesel Vehicles	244	1%
Other Mobile	4534	21%
Natural Sources	43	0%
Total Statewide	***22022***	***100%***

Table 5-4

petroleum refining, and electric generation. The primary area-wide sources include the application of agricultural and structural pesticides. The primary natural sources are petroleum seeps that form where oil or natural gas emerge from subsurface sources to the ground or water surface.

2001 Top Ten Counties - Benzene

The top ten counties account for approximately 56 percent of the statewide benzene emissions. The South Coast Air Basin has four of the top ten counties emitting benzene: South Coast portion of Los Angeles County (18 percent of the emissions of benzene statewide), Orange County (6 percent), South Coast portion of San Bernardino County (3 percent), and South Coast portion of Riverside County (3 percent). Collectively, approximately 30 percent of statewide benzene emissions occur in the South Coast Air Basin. Two counties in the San Joaquin Valley Air Basin contribute approximately 9 percent: Kern County (5 percent) and Fresno County (4 percent). The four other counties in the top ten for benzene emissions are: San Diego, Santa Clara, Alameda, and Sacramento. These four counties account for approximately 17 percent of statewide benzene emissions.

Benzene			
County	Air Basin	tons/year	Percent
Los Angeles	South Coast	3928	18%
San Diego	San Diego	1471	7%
Orange	South Coast	1307	6%
Kern	San Joaquin Valley	1158	5%
Fresno	San Joaquin Valley	971	4%
Santa Clara	San Francisco Bay Area	859	4%
Alameda	San Francisco Bay Area	677	3%
Sacramento	Sacramento Valley	669	3%
San Bernardino	South Coast	646	3%
Riverside	South Coast	562	3%

Table 5-5

Benzene

Air Quality and Health Risk

The ARB has routinely monitored benzene concentrations in the ambient air for more than a decade. Based on the statewide annual averages, the 2000 statewide ambient benzene concentration was about 72 percent lower than the peak in 1990. Figure 5-3 shows the annual average statewide benzene concentrations and the associated health risk from benzene alone. Health risk is based on the annual average concentration and represents the estimated number of excess cancer cases per million people exposed to the specified concentration level over a 70-year lifetime. From these data, it is apparent that benzene poses a substantial health risk. In fact, based on the statewide averages, benzene ranks third highest among the ten TACs presented in this almanac. During 2000, there was an estimated chance of 66 excess cancer cases per million people from benzene. However, as with all air pollutants, the health risk is not spread evenly throughout the State. In some areas, the health risk is higher than the statewide average, while in other areas the health risk is lower. In general, ambient benzene concentrations and associated health risks tend to be higher in the more urbanized areas.

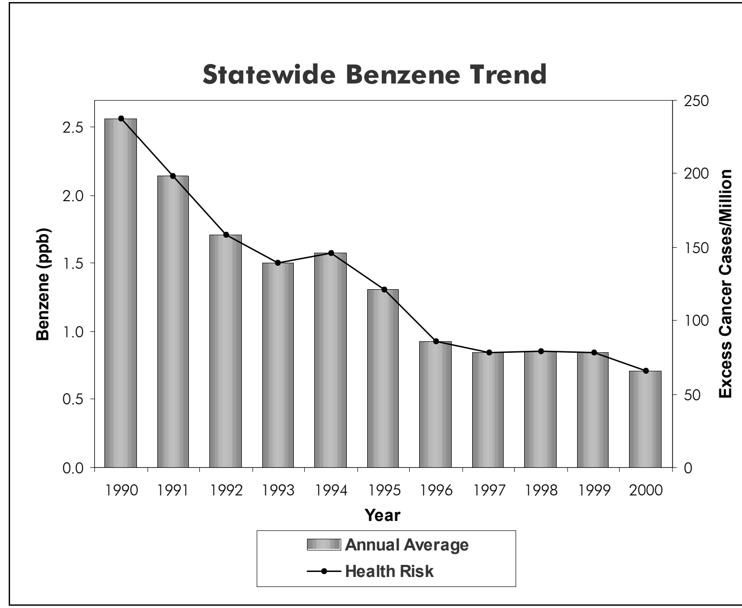

Figure 5-3

It is important to note that the ambient benzene concentrations have been corrected to provide a consistent long-term data record. Prior to 1999, the ARB analyzed samples using a single-point calibration of the gas chromatograph analyzers. While this method was approved by the U.S. Environmental Protection Agency, it resulted in low concentrations being under-reported. Beginning January 1, 1999, new and more sophisticated computer software allowed the ARB to switch to a 3-point calibration of the analyzers. This improved measurement technique more accurately characterizes the ambient benzene, especially at low concentrations. However, concentrations measured using the 3-point calibration method are higher than those measured with the single-point calibration method. A year-long study showed that the two measurement methods were highly correlated, and the ARB was able to develop a predictive relationship between the two. To avoid discontinuity in the trend data, the pre-1999 benzene data shown in Figure 5-3 have been adjusted according to these predictive equations, and they now reflect the results that would have been produced using the 3-point calibration method. Information about the specific study process and adjustment equations is available from the ARB Monitoring and Laboratory Division.

Although the health risk from benzene is still substantial, emissions have been reduced significantly over the last decade, and they will be reduced further in California through a progression of regulatory measures and control technologies. Since motor vehicles continue to be the major source of benzene in the State, future efforts to improve fuel formulations, reduce vehicle exhaust emissions, and promote less polluting modes of transportation will likely continue to help reduce benzene emissions.

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1,3-Butadiene

2001 Statewide Emission Inventory

The ARB identified 1,3-butadiene as a TAC in 1992. In California, 1,3-butadiene has been identified as a carcinogen. In addition, 1,3-butadiene vapors are mildly irritating to the eyes and mucous membranes and cause neurological effects at very high levels.

Most of the emissions of 1,3-butadiene are from incomplete combustion of gasoline and diesel fuels. Mobile sources account for approximately 87 percent of the total statewide emissions. Vehicles that are not equipped with functioning exhaust catalysts emit greater amounts of 1,3-butadiene than vehicles with functioning catalysts. Approximately 54 percent of the statewide 1,3-butadiene emissions can be attributed to on-road motor vehicles, with an additional 33 percent attributed to other mobile sources such as recreational boats, off-road recreational vehicles, and aircraft. Area-wide sources such as agricultural waste burning and open burning associated with forest management contribute approximately 10 percent. Stationary sources contribute less than 1 percent of the statewide 1,3-butadiene emissions. The primary stationary sources with reported 1,3-butadiene emissions include petroleum refining, manufacturing of synthetics and man-made materials, and oil and gas extraction. The primary natural sources are wildfires.

1,3-Butadiene		
Emissions Source	**tons/year**	**Percent**
Stationary Sources	16	<1%
Area-wide Sources	385	10%
On-Road Mobile	1994	54%
Gasoline Vehicles	1971	54%
Diesel Vehicles	23	1%
Other Mobile	1201	33%
Natural Sources	83	2%
Total Statewide	***3678***	***100%***

Table 5-6

2001 Top Ten Counties - 1,3-Butadiene Emissions

The top ten counties account for approximately 50 percent of the statewide 1,3-butadiene emissions. Four counties in the South Coast Air Basin contribute approximately 28 percent: South Coast portion of Los Angeles County (17 percent), Orange County (5 percent), South Coast portion of San Bernardino County (3 percent), and South Coast portion of Riverside County (3 percent). San Diego County accounts for approximately 7 percent. The San Joaquin Valley Air Basin has two of the top ten counties emitting 1,3-butadiene: Tulare County (3 percent) and Kern County (3 percent). The other counties in the top ten for 1,3-butadiene emissions are: Santa Clara, Alameda, and Sacramento.

1,3-Butadiene			
County	**Air Basin**	**tons/year**	**Percent**
Los Angeles	South Coast	630	17%
San Diego	San Diego	264	7%
Orange	South Coast	192	5%
Santa Clara	San Francisco Bay Area	127	3%
Tulare	San Joaquin Valley	116	3%
San Bernardino	South Coast	114	3%
Kern	San Joaquin Valley	104	3%
Alameda	San Francisco Bay Area	102	3%
Sacramento	Sacramento Valley	100	3%
Riverside	South Coast	100	3%

Table 5-7

1,3-Butadiene

Air Quality and Health Risk

The ARB routinely monitors for 1,3-butadiene at its statewide air toxics monitoring network. Figure 5-4 shows the annual average statewide 1,3-butadiene concentrations and the associated health risk from this TAC alone. The data show a general downward trend, with some variability. Ambient concentrations show a drop of 56 percent from 1990 to 2000. There has been an equivalent drop in the health risk. Despite this substantial drop, the health risk from this compound remains relatively high. Of the ten compounds presented in this almanac, the average statewide health risk from 1,3-butadiene ranks second. Again, it is important to remember that the data shown here reflect statewide averages. They do not consider local impacts, which may be higher or lower.

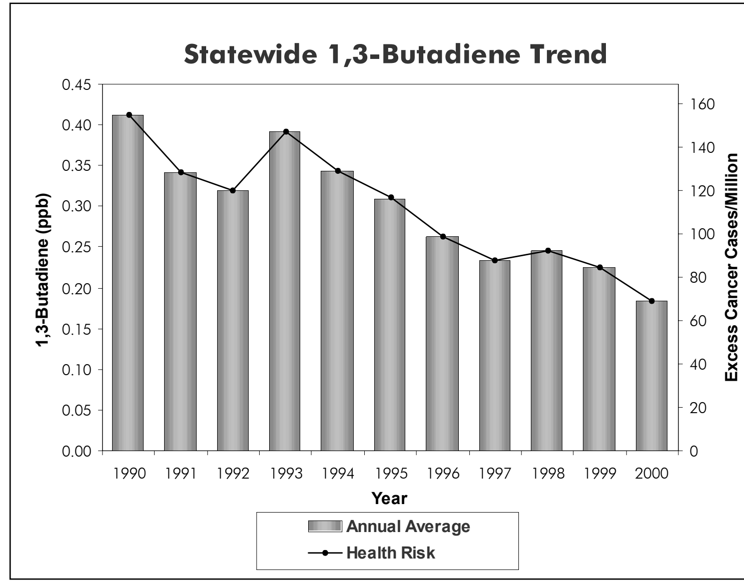

Figure 5-4

Similar to benzene, the ARB analyzed 1,3-butadiene samples using a single-point calibration of the gas chromatograph analyzers prior to 1999. While this method was approved by the U.S. EPA, it resulted in low concentrations being under-reported. Beginning January 1, 1999, new and more sophisticated computer software allowed the ARB to switch to a 3-point calibration of the analyzers. This improved measurement technique more accurately characterizes the ambient 1,3-butadiene, especially at low concentrations. However, concentrations measured using the 3-point calibration method are higher than those measured with the single-point calibration method. A year-long study showed that the two measurement methods were highly correlated and the ARB was able to develop a predictive relationship between them. To avoid discontinuity in the trend data, the pre-1999 1,3-butadiene data shown in Figure 5-4 have been adjusted according to these predictive equations and now reflect the results that would have been produced using the 3-point calibration method. Information about the specific study process and adjustment equations is available from the ARB Monitoring and Laboratory Division.

In California, the majority of 1,3-butadiene emissions are from incomplete combustion of gasoline and diesel fuels. The ARB adopted the Low Emission Vehicles/Clean Fuels regulations in 1990 and the Phase 2 reformulated gasoline regulations in 1991. These regulations are expected to continue to reduce 1,3-butadiene emissions from cars and light-duty trucks.

Carbon Tetrachloride

2001 Statewide Emission Inventory

The ARB identified carbon tetrachloride as a Toxic Air Contaminant in 1987 under California's TAC program (AB 1807). In California, carbon tetrachloride has been identified as a carcinogen. Carbon tetrachloride is also a central nervous system depressant and mild eye and respiratory tract irritant.

The primary stationary sources reporting emissions of carbon tetrachloride include chemical and allied product manufacturers and petroleum refineries. In the past, carbon tetrachloride was used for dry cleaning and as a grain-fumigant. Usage for these purposes is no longer allowed in the United States. Carbon tetrachloride has not been registered for pesticidal use in California since 1987. Also, the use of carbon tetrachloride in products to be used indoors has been discontinued in the United States. The statewide emissions of carbon tetrachloride are small (about 4 tons per year), and background concentrations account for most of the health risk.

Carbon Tetrachloride		
Emissions Source	**tons/year**	**Percent**
Stationary Sources	3.67	100%
Area-wide Sources	0.00	0%
On-Road Mobile	0.00	0%
Gasoline Vehicles	0.00	0%
Diesel Vehicles	0.00	0%
Other Mobile	0.00	0%
Natural Sources	0.00	0%
Total Statewide	***3.67***	***100%***

Table 5-8

2001 Top Ten Counties - Carbon Tetrachloride

The top two counties account for approximately 90 percent of the statewide carbon tetrachloride emissions. Los Angeles County (South Coast Air Basin portion) accounts for approximately 50 percent, and Contra Costa County, located in the San Francisco Bay Area Air Basin, accounts for approximately 40 percent of the emissions of carbon tetrachloride statewide. Although the percentages for these two counties are high, the emissions are very small (about 2 tons per year in each county). The eight other counties in the top ten contribute approximately 9 percent of statewide carbon tetrachloride emissions.

Carbon Tetrachloride			
County	Air Basin	tons/year	Percent
Los Angeles	South Coast	1.83	50%
Contra Costa	San Francisco Bay Area	1.46	40%
Orange	South Coast	0.08	2%
Santa Barbara	South Central Coast	0.07	2%
Sacramento	Sacramento Valley	0.06	2%
Alameda	San Francisco Bay Area	0.03	1%
Riverside	South Coast	0.02	<1%
Ventura	South Central Coast	0.02	<1%
Sonoma	San Francisco Bay Area	0.02	<1%
Kern	Mojave Desert	0.02	<1%

Table 5-9

Carbon Tetrachloride

Air Quality and Health Risk

The ARB routinely monitors carbon tetrachloride concentrations in the ambient air. Based on data from sites in the TAC monitoring network, the year 2000 statewide average carbon tetrachloride concentration and the associated health risk were 28 percent lower than the peak in 1990. Figure 5-5 shows the annual average statewide concentrations and the associated health risk from carbon tetrachloride alone. During 2000, there was an estimated risk of 25 excess cancer cases per million people. This ranks fourth among the ten compounds presented in this almanac. As with all air pollutants, the health risk is not spread evenly throughout the State. In some areas, the health risk is higher than the statewide average, while in other areas the health risk is lower. As with a number of other TACs, there are several years of incomplete data for carbon tetrachloride. Based on the data that are available, the ambient concentrations and health risk dropped between 1990 and 1996, and then there was then a substantial increase in values for 1998. Although values dropped again in 2000, the values for the year 2000 are still about 20 percent higher than the values for 1996. Data are not sufficient to determine if the higher values during

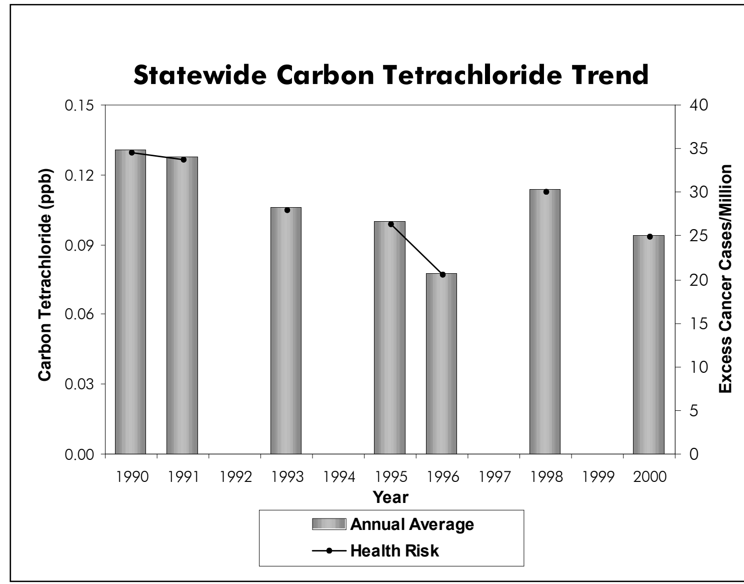

Figure 5-5

the end years are anomalous or if a trend towards higher values will continue. It is, however, important to remember that the data have not been adjusted for variations in meteorology, and the increased values may be due in part to meteorological fluctuations rather than changes in emissions.

Unlike many of the other TACs, carbon tetrachloride is emitted primarily by sources other than motor vehicles. Many of these sources are being controlled. However, because carbon tetrachloride persists in the atmosphere for many years (estimated atmospheric lifetime is 50 years), background concentrations account for most of the health risk, and local controls have limited impact.

Chromium (Hexavalent)

2001 Statewide Emission Inventory

Chromium (hexavalent) was identified as a Toxic Air Contaminant in 1986 under California's TAC program (AB 1807). In California, chromium (hexavalent) has been identified as a carcinogen. There is epidemiological evidence that exposure to inhaled chromium (hexavalent) may result in lung cancer. The principal acute effects of chromium (hexavalent) are renal toxicity, gastrointestinal hemorrhage, and intravascular hemolysis.

Chrome plating is a primary source of chromium (hexavalent) emissions in the State. Chromic acid anodizing is another industrial metal finishing process which uses chromium (hexavalent). A third source of chromium (hexavalent) emissions is the firebrick lining of glass furnaces. In California, stationary sources are estimated to emit approximately 1 ton annually of chromium (hexavalent). Emissions from these sources were obtained from facilities under the Air Toxics Hot Spots Act of 1987. This act required facilities to estimate toxics and potential toxics emissions, including chromium (hexavalent). Area-wide sources include oil and gas production, specifically the burning of residual and distillate oils. There is no evidence showing chromium (hexavalent) in gasoline or diesel used in on-road motor vehicles. Therefore, we do not expect any chromium (hexavalent) emissions from this category. However, other mobile sources such as trains and ships contribute approximately 1 ton of chromium (hexavalent) annually.

Chromium (Hexavalent)		
Emissions Source	**tons/year**	**Percent**
Stationary Sources	1.29	59%
Area-wide Sources	0.01	<1%
On-Road Mobile	0	0%
Gasoline Vehicles	0	0%
Diesel Vehicles	0	0%
Other Mobile	0.89	41%
Natural Sources	<.01	<1%
Total Statewide	***2.20***	***100%***

Table 5-10

2001 Top Ten Counties - Chromium (Hexavalent)

Four counties account for approximately 55 percent of the statewide chromium (hexavalent) emissions: South Coast portion of Los Angeles County (22 percent of the emissions of chromium (hexavalent) statewide), Mojave Desert portion of Kern County (14 percent), San Diego County (10 percent), and San Francisco Bay Area portion of Solano County (9 percent). Collectively, approximately 30 percent of statewide chromium (hexavalent) emissions occur in the South Coast Air Basin. Three counties in the San Joaquin Valley Air Basin contribute approximately 14 percent: Fresno County (8 percent), San Joaquin County (4 percent), and San Joaquin Valley portion of Kern County (2 percent). The remaining three counties in the top ten for chromium (hexavalent) emissions are: Riverside (South Coast Air Basin portion), San Bernardino (Mojave Desert portion) and Orange County.

Chromium (Hexavalent)			
County	**Air Basin**	**tons/year**	**Percent**
Los Angeles	South Coast	0.49	22%
Kern	Mojave Desert	0.31	14%
San Diego	San Diego	0.22	10%
Solano	San Francisco Bay Area	0.20	9%
Fresno	San Joaquin Valley	0.17	8%
Riverside	South Coast	0.12	6%
San Joaquin	San Joaquin Valley	0.09	4%
San Bernardino	Mojave Desert	0.08	3%
Orange	South Coast	0.05	2%
Kern	San Joaquin Valley	0.04	2%

Table 5-11

Chromium (Hexavalent)

Air Quality and Health Risk

Chromium (hexavalent) is the only one of the top ten toxic air contaminants that is a metal, not a gas. Statewide annual averages and health risk estimates are available for 1992 through 2000. Prior to 1992, a different measurement method was used. With this method, some of the chromium (hexavalent) was transformed into chromium (trivalent) on the collection filter. As a result, the chromium (hexavalent) concentrations were underestimated, and these data are not included in this almanac. Since 1992, a new and more accurate method has been used.

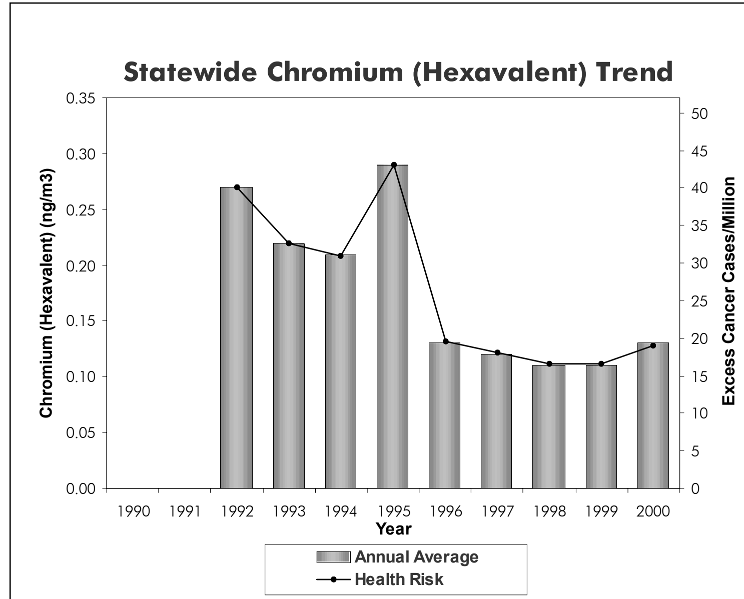

Figure 5-6

The annual average statewide concentrations and health risk values are shown in Figure 5-6. Both show a general downward trend, with the exception of 1995. The high 1995 value is driven in part by an extremely high annual average for the Burbank site in the South Coast Air Basin. However, a number of other sites also had higher concentrations in 1995 than in other years. While the reasons for these high values are uncertain, some of the variation may be attributable to meteorology. Based on statewide data, the 2000 annual average chromium (hexavalent) concentration and the associated health risk were 52 percent lower than they were in 1992. During 2000, there was an estimated risk of 19 excess cancer cases per million people, from chromium (hexavalent) alone. While this is higher than the value for 1999, remember that the data have not been adjusted for meteorological fluctuations. Based on data for all ten TACs presented in this almanac, chromium (hexavalent) ranks fifth in terms of health risk. As with all air pollutants, the health risk is not spread evenly throughout the State. In some areas, the health risk is higher than the statewide average, while in other areas the health risk is lower.

It is important to note that many of the measured concentrations for chromium (hexavalent) are below the Limit of Detection (LOD), which is the lowest concentration that can be reliably measured. The LOD for chromium (hexavalent) is 0.2 nanograms per cubic meter (ng/m^3). During 1998 through 2000, an average of 93 percent of the values during each year were below the LOD. In calculating an annual average, values below the LOD are assumed to equal one-half the LOD. For chromium (hexavalent), one-half the LOD is 0.1 ng/m^3.

In 1988, the ARB adopted an airborne toxic control measure to control emissions of chromium (hexavalent) from chrome plating and chromic acid anodizing operations. The control measure contains both an interim requirement (95 percent control) and a technology-forcing requirement (99.8 percent control). In the past, compounds containing chromium (hexavalent), such as sodium dichromate or lead chromate, were added to cooling tower water to control corrosion in the towers and associated heat exchangers. The ARB adopted a statewide airborne toxic control measure in 1989 that prohibits the use of chromium (hexavalent) in cooling towers. Implementation of these control measures has helped reduce ambient concentrations and associated health risks from chromium (hexavalent).

At its September 2001 Board Hearing, the ARB approved an air toxic control measure banning the use of both chromium (hexavalent) and cadmium in motor vehicle and mobile equipment coatings. The measure becomes effective January 1, 2003, and allows a sell-through period to deplete existing inventories. Statewide, ARB estimates that 99 percent of auto body repair and refinishing facilities already use chromium-free and cadmium-free coatings. This rule will ensure additional reductions in chromium (hexavalent) exposures near those facilities that do not.

para-Dichlorobenzene

2001 Statewide Emission Inventory

The ARB identified *para*-dichlorobenzene as a TAC in April 1993 under AB 2728. This bill required the ARB to identify, by regulation, all federal hazardous air pollutants as TACs. In California, *para*-dichlorobenzene has been identified as a carcinogen. In addition to the carcinogenic impact, long-term inhalation exposure may affect the liver, skin, and central nervous system in humans.

The primary area-wide sources that have reported emissions of *para*-dichlorobenzene include consumer products such as non-aerosol insect repellants and solid/gel air fresheners. These sources contribute approximately 99 percent of the statewide *para*-dichlorobenzene emissions. Stationary sources contribute approximately 1 percent. The primary stationary sources include plating and polishing of fabricated metal products, crude petroleum and natural gas extraction, and sanitary services.

para-Dichlorobenzene		
Emissions Source	**tons/year**	**Percent**
Stationary Sources	15	1%
Area-wide Sources	1783	99%
On-Road Mobile	0	0%
Gasoline Vehicles	0	0%
Diesel Vehicles	0	0%
Other Mobile	0	0%
Natural Sources	0	0%
Total Statewide	***1799***	***100%***

Table 5-12

2001 Top Ten Counties - *para*-Dichlorobenzene

The top ten counties account for approximately 69 percent of the statewide *para*-dichlorobenzene emissions. The South Coast Air Basin has four of the top ten counties: South Coast portion of Los Angeles County (27 percent of the emissions of *para*-dichlorobenzene statewide), Orange County (9 percent), South Coast portion of San Bernardino County (4 percent), and South Coast portion of Riverside County (4 percent). Collectively, approximately 44 percent of statewide *para*-dichlorobenzene emissions occur in the South Coast Air Basin. San Diego County contributes approximately 8 percent. Three counties in the San Francisco Bay Area Air Basin contribute approximately 12 percent: Santa Clara County (5 percent), Alameda County (4 percent), and Contra Costa County (3 percent). The two other counties in the top ten for *para*-dichlorobenzene emissions are Sacramento and Fresno.

para-Dichlorobenzene			
County	**Air Basin**	**tons/year**	**Percent**
Los Angeles	South Coast	483	27%
Orange	South Coast	155	9%
San Diego	San Diego	150	8%
Santa Clara	San Francisco Bay Area	89	5%
Alameda	San Francisco Bay Area	74	4%
San Bernardino	South Coast	69	4%
Riverside	South Coast	64	4%
Sacramento	Sacramento Valley	62	3%
Contra Costa	San Francisco Bay Area	49	3%
Fresno	San Joaquin Valley	43	2%

Table 5-13

para-Dichlorobenzene
Air Quality and Health Risk

The ARB routinely monitors for *para*-dichlorobenzene, and statewide annual average concentrations and health risk estimates are available for 1991 through 1997 and for the year 2000. These values have remained fairly constant over the trend period, showing very little change. The variations that are present are probably caused by year-to-year variations in meteorology rather than substantial changes in emissions. Figure 5-7 shows the annual average statewide *para*-dichlorobenzene concentrations and the associated health risk from *para*-dichlorobenzene alone. As with all air pollutants, the health risk is not spread evenly throughout the State. In some areas, the health risk is higher than the statewide average, while in other areas the health risk is lower. During 2000, there was an estimated risk of 8 excess cancer cases per million people, from this compound alone. Based on this, *para*-dichlorobenzene ranks seventh out of the ten compounds presented in this almanac.

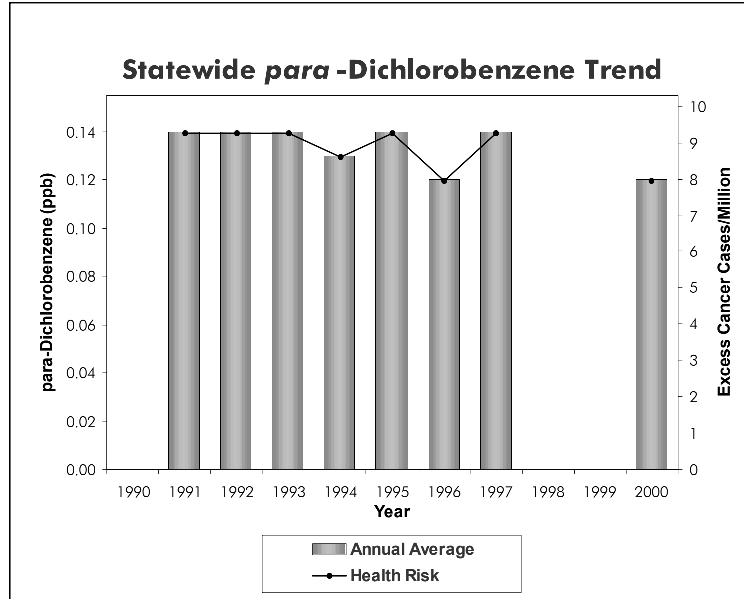

Figure 5-7

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Formaldehyde

2001 Statewide Emission Inventory

The ARB identified formaldehyde as a TAC in 1992 under California's TAC program (AB 1807). In California, formaldehyde has been identified as a carcinogen. Chronic exposure is associated with respiratory symptoms and eye, nose, and throat irritation.

Formaldehyde is both directly emitted into the atmosphere and formed in the atmosphere as a result of photochemical oxidation. Photochemical oxidation is the largest source of formaldehyde concentrations in California ambient air. Formaldehyde is a product of incomplete combustion. One of the primary sources of directly-emitted formaldehyde is vehicular exhaust. Formaldehyde is used in resins, can be found in many consumer products as an antimicrobial agent, and is also used in fumigants and soil disinfectants. About 81 percent of direct formaldehyde emissions are estimated to come from the combustion of fossil fuels from mobile sources. Approximately 33 percent of the total statewide formaldehyde emissions can be attributed to on-road motor vehicles, with an additional 48 percent attributed to other mobile sources such as aircraft, recreational boats, and construction and mining equipment. Area-wide sources contribute approximately 11 percent and stationary sources contribute approximately 8 percent of the statewide formaldehyde emissions. The primary area-wide sources in California that report formaldehyde emissions include the burning of wood in residential fireplaces and wood stoves.

Formaldehyde		
Emissions Source	**tons/year**	**Percent**
Stationary Sources	1828	8%
Area-wide Sources	2347	11%
On-Road Mobile	7199	33%
Gasoline Vehicles	5408	25%
Diesel Vehicles	1792	8%
Other Mobile	10396	48%
Natural Sources	0	0%
Total Statewide	***21771***	***100%***

Table 5-14

2001 Top Ten Counties - Formaldehyde

The top ten counties account for approximately 52 percent of the statewide formaldehyde emissions. The South Coast Air Basin has four of the top ten counties emitting formaldehyde: South Coast portion of Los Angeles County (16 percent of the emissions of formaldehyde statewide), Orange County (5 percent), South Coast portion of San Bernardino County (3 percent), and South Coast portion of Riverside County (3 percent). Collectively, approximately 27 percent of statewide formaldehyde emissions occur in the South Coast Air Basin. The six other counties in the top ten for formaldehyde emissions are: San Diego, Kern, Santa Clara, Alameda, Fresno, and Sacramento. These six counties account for approximately 25 percent of statewide formaldehyde emissions.

Formaldehyde			
County	**Air Basin**	**tons/year**	**Percent**
Los Angeles	South Coast	3394	16%
San Diego	San Diego	1542	7%
Kern	San Joaquin Valley	1221	6%
Orange	South Coast	1125	5%
Santa Clara	San Francisco Bay Area	737	3%
Alameda	San Francisco Bay Area	657	3%
Fresno	San Joaquin Valley	647	3%
San Bernardino	South Coast	639	3%
Sacramento	Sacramento Valley	597	3%
Riverside	South Coast	574	3%

Table 5-15

Formaldehyde

Air Quality and Health Risk

The ARB routinely monitors formaldehyde concentrations in the ambient air. While the trend graph for formaldehyde shows a great deal of variability, there is a general drop in ambient concentrations and health risk (excess cancer cases) during 1990 through 1992. Following this, there is a general increase until 1996 and then a general decrease from 1996 to 2000. Because of the variability in the data, it will be several more years before we can determine the overall nature of the trend.

Although data are shown for all years during the trend period, the values prior to 1996 are uncertain. The data analyzed prior to 1996 were based on a method that underestimated the actual concentrations. A method change in 1996 corrected this problem. However, a correction factor could not be developed for the earlier data. While the data prior to the method change are included here for completeness, they are not directly comparable to data collected during the later years. Since 1996, the statewide annual average concentrations and health risk have declined about 25 percent. While formaldehyde is emitted by both stationary and mobile sources, mobile sources are, by far,

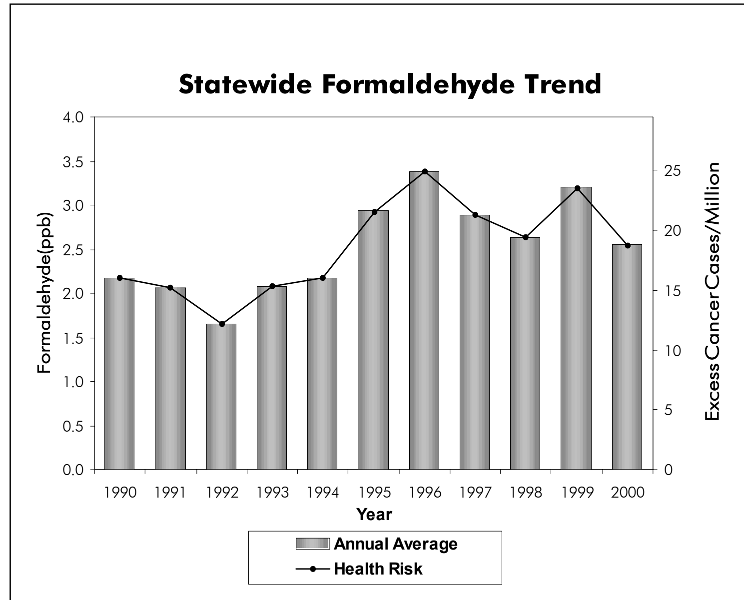


Figure 5-8

the largest contributors. The ARB adopted the Low Emissions/Clean Fuels Regulations in 1990, and these regulations are expected to continue to reduce formaldehyde emissions from cars and light-duty trucks. With these reductions should come lower ambient outdoor concentrations and a lowered health risk from formaldehyde exposure.

While ambient outdoor formaldehyde concentrations are expected to decline, formaldehyde concentrations indoors are generally higher. This is because many building materials, consumer products, and fabrics emit formaldehyde. As a result, indoor formaldehyde levels are expected to remain higher than outdoor levels because of new materials brought into the home, as a consequence of remodeling or purchasing new furnishings. Other indoor combustion sources such as wood and gas stoves, kerosene heaters, and cigarettes also contribute to indoor formaldehyde levels, although intermittently.

Methylene Chloride

2001 Statewide Emission Inventory

The ARB identified methylene chloride as a Toxic Air Contaminant in 1987 under California's TAC program. In California, methylene chloride has been identified as a carcinogen. In addition, chronic exposure can lead to bone marrow, hepatic, and renal toxicity.

Methylene chloride is used as a solvent, a blowing and cleaning agent in the manufacture of polyurethane foam and plastic fabrication, and as a solvent in paint stripping operations. Although methylene chloride is used in some aerosol consumer products (e.g., aerosol paints and automotive products), most consumer product manufacturers have voluntarily phased out its use. Paint removers account for the largest use of methylene chloride in California, where methylene chloride is the main ingredient in many paint stripping formulations. Plastic product manufacturers, manufacturers of synthetics, and aircraft and parts manufacturers are stationary sources reporting emissions of methylene chloride. These sources contribute approximately 55 percent of the statewide methylene chloride emissions. Area-wide sources contribute approximately 45 percent.

Methylene Chloride		
Emissions Source	**tons/year**	**Percent**
Stationary Sources	4455	55%
Area-wide Sources	3668	45%
On-Road Mobile	0	0%
Gasoline Vehicles	0	0%
Diesel Vehicles	0	0%
Other Mobile	0	0%
Natural Sources	0	0%
Total Statewide	***8124***	***100%***

Table 5-16

The primary area-wide sources include consumer products such as paint removers and strippers and automotive brake cleaners.

2001 Top Ten Counties - Methylene Chloride

The top ten counties account for approximately 80 percent of the statewide methylene chloride emissions. The South Coast Air Basin has four of the top ten counties emitting methylene chloride: South Coast portion of Los Angeles County (32 percent of the emissions of methylene chloride statewide), Orange County (13 percent), South Coast portion of San Bernardino County (6 percent), and South Coast portion of Riverside County (3 percent). Collectively, approximately 54 percent of statewide methylene chloride emissions occur in the South Coast Air Basin. Three counties in the San Francisco Bay Area Air Basin contribute approximately 17 percent: Santa Clara County (11 percent), Alameda County (4 percent), and San Mateo County (2 percent). The three other counties in the top ten for methylene chloride emissions are: San Diego, Sacramento, and Ventura. Together, these three counties account for approximately 9 percent of statewide methylene chloride emissions.

Methylene Chloride			
County	**Air Basin**	**tons/year**	**Percent**
Los Angeles	South Coast	2562	32%
Orange	South Coast	1009	13%
Santa Clara	San Francisco Bay Area	855	11%
San Bernardino	South Coast	462	6%
San Diego	San Diego	378	5%
Alameda	San Francisco Bay Area	312	4%
Riverside	South Coast	248	3%
Sacramento	Sacramento Valley	178	2%
Ventura	South Central Coast	170	2%
San Mateo	San Francisco Bay Area	149	2%

Table 5-17

Methylene Chloride

Air Quality and Health Risk

The ARB routinely monitors methylene chloride in the ambient air. The trend graph in Figure 5-9 shows some variability, probably caused by year-to-year changes in meteorology. However, there is an overall downward trend. While the statewide annual average concentrations and health risk have dropped 39 percent since 1990, there has been essentially no change during the last five years. Of the ten compounds presented in this almanac, methylene chloride presents the lowest health risk, on a statewide basis. However, any level of risk is a concern from a public health standpoint. During 2000, there was an estimated risk of 2 excess cancer cases per million people.

In California, paint removers account for the largest use of methylene chloride which is the primary ingredient in paint stripping formulations used for industrial, commercial, military, and domestic applications. Because methylene chloride is also a constituent in many consumer products, including aerosol paints and automotive products, short-term indoor concentrations may be several orders of magnitude higher than the ambient outdoor concentrations. Many manufacturers of consumer products are voluntarily phasing-out their use

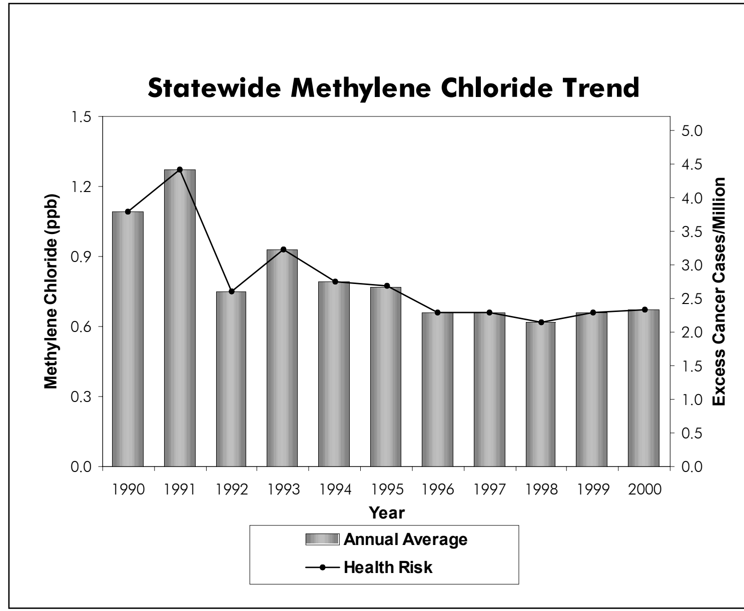


Figure 5-9

of methylene chloride. In addition, in the case of aerosol paints, use will be restricted by a provision in the ARB's "Regulation for Reducing Volatile Organic Compound (VOC) Emissions from Aerosol Coating Products," adopted in March 1995. These regulations should help to further reduce ambient outdoor concentrations and health risks.

Perchloroethylene

2001 Statewide Emission Inventory

The ARB identified perchloroethylene as a Toxic Air Contaminant in 1991 under California's TAC program (AB 1807). In California, perchloroethylene has been identified as a carcinogen. Perchloroethylene vapors are irritating to the eyes and respiratory tract. Following chronic exposure, workers have shown signs of liver toxicity, as well as kidney dysfunction and neurological effects.

Perchloroethylene is used as a solvent, primarily in dry cleaning operations. Perchloroethylene is also used in degreasing operations, paints and coatings, adhesives, aerosols, specialty chemical production, printing inks, silicones, rug shampoos, and laboratory solvents. In California, the stationary sources that have reported emissions of perchloroethylene are dry cleaning plants, aircraft part and equipment manufacturers, and fabricated metal product manufacturers. These stationary sources account for 82 percent of the statewide emissions of perchloroethylene. Area-wide sources contribute approximately 18 percent. The primary area-wide sources include consumer products such as automotive brake cleaners and tire sealants and inflators.

Perchloroethylene		
Emissions Source	**tons/year**	**Percent**
Stationary Sources	9860	82%
Area-wide Sources	2170	18%
On-Road Mobile	0	0%
Gasoline Vehicles	0	0%
Diesel Vehicles	0	0%
Other Mobile	0	0%
Natural Sources	0	0%
Total Statewide	***12030***	***100%***

Table 5-18

2001 Top Ten Counties - Perchloroethylene

The top ten counties account for approximately 74 percent of the statewide perchloroethylene emissions. The South Coast Air Basin has four of the top ten counties emitting perchloroethylene: South Coast portion of Los Angeles County (26 percent of the emissions of perchloroethylene statewide), Orange County (13 percent), South Coast portion of San Bernardino County (3 percent), and South Coast portion of Riverside County (2 percent). Collectively, approximately 44 percent of statewide perchloroethylene emissions occur in the South Coast Air Basin. San Diego County contributes approximately 14 percent. The five other counties in the top ten for perchloroethylene emissions are: Alameda, Sacramento, Santa Clara, San Francisco, and San Mateo. These five counties account for approximately 16 percent of statewide perchloroethylene emissions.

Perchloroethylene			
County	Air Basin	tons/year	Percent
Los Angeles	South Coast	3088	26%
San Diego	San Diego	1668	14%
Orange	South Coast	1537	13%
Alameda	San Francisco Bay Area	467	4%
Sacramento	Sacramento Valley	461	4%
Santa Clara	San Francisco Bay Area	422	4%
San Bernardino	South Coast	399	3%
San Francisco	San Francisco Bay Area	284	2%
Riverside	South Coast	274	2%
San Mateo	San Francisco Bay Area	258	2%

Table 5-19

Perchloroethylene
Air Quality and Health Risk

The ARB routinely monitors perchloroethylene concentrations in the ambient air. The trend graph for perchloroethylene shows some variability, probably caused by year-to-year changes in meteorology. However, there is an overall downward trend. Since 1990, the statewide annual average concentrations and health risk have dropped 58 percent. Figure 5-10 shows the annual average statewide perchloroethylene concentrations and the associated health risk for 1990 through 1998 and for 2000, the years for which complete and representative data are available. Health risk is based on the annual average concentration and represents the estimated risk of excess cancer cases per million people exposed over a 70-year lifetime at the specified concentration level. During 2000, there was an estimated chance of 5 excess cancer cases per million people.

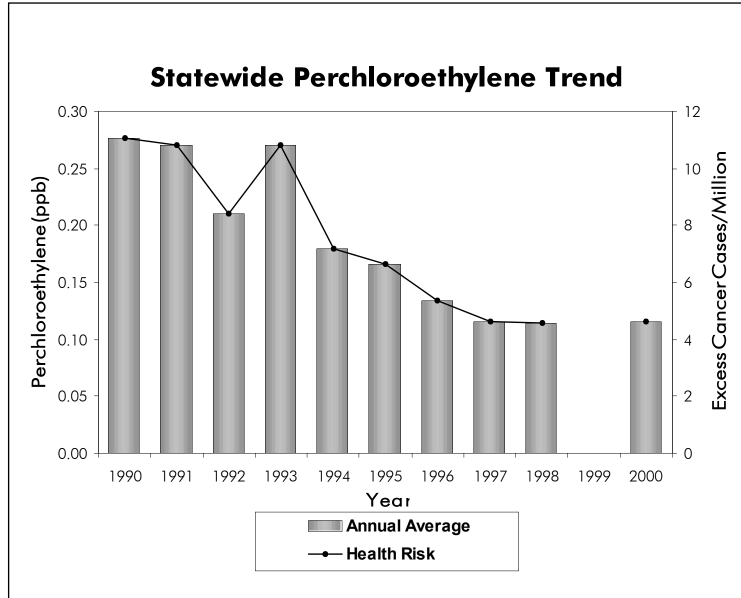


Figure 5-10

When the ARB identified perchloroethylene as a TAC in October 1991, the ARB estimated that 60 percent of perchloroethylene came from dry cleaning operations. Examination of industry practices suggested there was a potential for significant reductions of emissions. The ARB focused control efforts on that industry and adopted a control measure governing the use of perchloroethylene in dry cleaning operations in October 1993. The final deadline for compliance was 1998. In addition to requiring emission controls, the ARB has worked with the industry to provide training for industry personnel on improved practices and methods for reducing emissions. In the near future, the most significant factor affecting emissions will most likely be a continued reduction as more dry cleaning operations modify or replace older equipment. In the long-term, increasing population in California may lead to increased demand for services and products using perchloroethylene. Barring future control measures, this could eventually lead to increased emissions.

Diesel Particulate Matter

2001 Statewide Emission Inventory

Diesel Particulate Matter		
Emissions Source	**tons/year**	**Percent**
Stationary Sources	558	2%
Area-wide Sources	0	0%
On-Road Mobile	6012	25%
Gasoline Vehicles	0	0%
Diesel Vehicles	6012	25%
Other Mobile	17939	73%
Natural Sources	0	0%
Total Statewide	***24509***	***100%***

Table 5-20

The ARB identified the particulate matter (PM) emissions from diesel-fueled engines as a TAC in August 1998 under California's TAC program. In California, diesel engine exhaust has been identified as a carcinogen. Most researchers believe that diesel exhaust particles contribute the majority of the risk.

Diesel PM is emitted from both mobile and stationary sources. In California, on-road diesel-fueled vehicles contribute approximately 25 percent of statewide total, with an additional 73 percent attributed to other mobile sources such as construction and mining equipment, agricultural equipment, and transport refrigeration units. Stationary sources, contributing about 2 percent of emissions, include shipyards, warehouses, heavy equipment repair yards, and oil and gas production operations. Emissions from these sources are from diesel-fueled internal combustion engines. Stationary sources that report diesel PM emissions also include heavy construction (except highway), manufacturers of asphalt paving materials and blocks, and electrical generation.

Readers may note that the diesel PM emission estimates differ from those presented in the ARB's October 2000 report entitled: "*Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*" (Diesel Risk Reduction Plan). This is because they incorporate more recent data. More specifically, the on-road mobile source emissions cited in the Diesel Risk Reduction Plan are based on an earlier version of EMFAC 2001 (EMFAC 1.99(f) 6/26/00) and the other mobile inventory includes revised estimates for ship diesel PM emissions. We will continue to refine estimates of diesel PM emissions as we develop the regulations identified in the Diesel Risk Reduction Plan. Even with these differences, the statewide emission estimates for diesel PM compare favorably.

2001 Top Ten Counties - Diesel Particulate Matter

The top ten counties account for approximately 55 percent of the statewide diesel particulate matter emissions. The South Coast Air Basin has three of the top ten counties emitting diesel particulate matter: South Coast portion of Los Angeles County (17 percent of the emissions of diesel particulate matter statewide), Orange County (7 percent), and South Coast portion of Riverside County (3 percent). Collectively, approximately 27 percent of statewide diesel particulate matter emissions occur in the South Coast Air Basin. San Diego County contributes approximately 7 percent, and Fresno County contributes approximately 4 percent. Three counties in the San Francisco Bay Area Air Basin contribute 11 percent: Alameda (4 percent), Santa Clara (4 percent), and San Francisco (3 percent). Sacramento County and the Mojave Desert portion of San Bernardino County contribute the remainder.

Diesel Particulate Matter			
County	**Air Basin**	**tons/year**	**Percent**
Los Angeles	South Coast	4338	17%
San Diego	San Diego	1731	7%
Orange	South Coast	1693	7%
Fresno	San Joaquin Valley	950	4%
Alameda	San Francisco Bay Area	938	4%
Santa Clara	San Francisco Bay Area	908	4%
San Francisco	San Francisco Bay Area	821	3%
Riverside	South Coast	817	3%
Sacramento	Sacramento Valley	807	3%
San Bernardino	Mojave Desert	726	3%

Table 5-21

Diesel Particulate Matter

Air Quality and Health Risk

The exhaust from diesel-fueled engines is a complex mixture of gases, vapors, and particles, many of which are known human carcinogens. More than 40 diesel exhaust components are listed by the State and federal governments as toxic air contaminants or hazardous air pollutants. Most researchers believe that diesel particulate matter contributes the majority of the risk from exposure to diesel exhaust because the particles carry many of the harmful organics and metals present in exhaust.

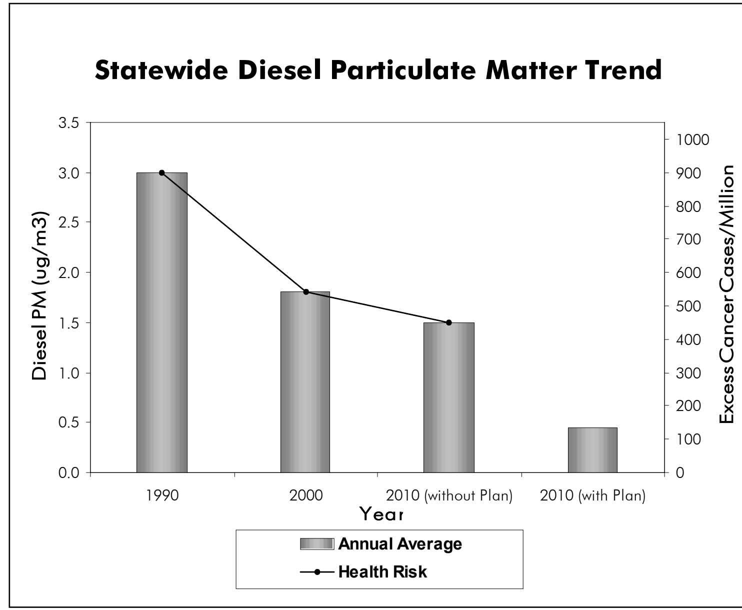


Figure 5-11

Unlike the other toxic air contaminants presented in this almanac, the Air Resources Board does not monitor diesel particulate matter because there is no routine method for monitoring ambient concentrations. However, the ARB made a preliminary estimation of diesel particulate matter concentrations for the State's fifteen air basins and for the State as a whole using a particulate matter-based exposure method. The method uses the ARB emission inventory's PM_{10} database, ambient PM_{10} monitoring data, and the results from several studies with chemical speciation of ambient data. These data were used, along with receptor modeling techniques, to estimate statewide outdoor concentrations of diesel particulate matter. The ARB subsequently updated the original statewide estimates based on the ratio between the previous estimate for 1990 and the most recent diesel PM emission inventory for the year 1990. The details of the methodology are described in Appendix VI to the ARB report entitled: *"Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles,"* (Risk Reduction Plan or Plan) dated October 2000.

The updated statewide population-weighted average diesel PM concentrations and health risk for various years are shown in Figure 5-11. The average statewide concentration for 1990 was estimated at 3.0 micrograms per cubic meter (µg/m^3). This is associated with a health risk of 900 excess cancer cases per million people exposed over a 70-year lifetime. In addition to the 1990 estimate, the ARB estimated population-weighted concentrations for 2000 and 2010. Two estimates are given for 2010: one reflecting the estimated ambient concentrations without implementing the Risk Reduction Plan and one reflecting the estimated ambient concentrations with implementation of control measures in the Risk Reduction Plan. These future year estimates are based on linear extrapolations from the 1990 emissions inventory and linear rollback techniques. The estimates for 2000 show a 40 percent drop from 1990, with a concentration of 1.8 µg/m^3 and an associated health risk of 540 excess cancer cases per million people. It is important to note that the estimated risk from diesel PM is higher than the risk from all other toxic air contaminants combined, and this TAC poses the most significant risk to California's citizens. In fact, the ARB estimates that 70 percent of the known statewide cancer risk from outdoor air toxics is attributable to diesel particulate matter.

The Risk Reduction Plan provides a mechanism for combating the diesel PM problem. Without implementing the Plan, concentrations in 2010 are estimated to drop by only about 17 percent from the estimated year 2000 level. However, implementing control measures in the Plan serves to reduce concentrations by 75 percent over the same timeframe. The key elements of the Plan are to clean existing engines by up to 85 percent through engine retrofits, to adopt stringent new standards that will reduce diesel particulate matter by over 90 percent, and to lower the sulfur content of diesel fuel to protect new, and very effective, advanced technology emission control devices on diesel engines. When fully implemented, the Risk Reduction Plan will significantly reduce emissions from both old and new diesel-fueled motor vehicles and from stationary sources that burn diesel fuel. In addition to these strategies, the ARB continues to promote the use of alternative fuels and electrification. As a result of these actions, diesel particulate matter concentrations and associated health risk should continue to decline.

South Coast Air Basin

2001 Emission Inventory by Compound

Acetaldehyde

Approximately 80 percent of the emissions of acetaldehyde are from mobile sources.

South Coast - Acetaldehyde			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	39	2%	0%
Area-wide Sources	369	18%	4%
On-Road Mobile	728	35%	9%
Gasoline Vehicles	422	20%	5%
Diesel Vehicles	306	15%	4%
Other Mobile	925	45%	11%
Natural Sources	0	0%	0%
Total	***2061***	***100%***	***25%***
Total Statewide	**8239**		

Table 5-22

Benzene

The primary sources of benzene emissions in the South Coast Air Basin are mobile sources (approximately 95 percent).

South Coast - Benzene			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	241	4%	1%
Area-wide Sources	137	2%	1%
On-Road Mobile	4866	76%	22%
Gasoline Vehicles	4783	74%	22%
Diesel Vehicles	83	1%	0%
Other Mobile	1198	19%	5%
Natural Sources	0	0%	0%
Total	***6442***	***100%***	***29%***
Total Statewide	**22022**		

Table 5-23

1,3-Butadiene

Approximately 94 percent of the emissions of 1,3-butadiene are from mobile sources.

South Coast - 1,3-Butadiene			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	5	0%	0%
Area-wide Sources	39	4%	1%
On-Road Mobile	715	69%	19%
Gasoline Vehicles	707	68%	19%
Diesel Vehicles	8	1%	<1%
Other Mobile	260	25%	7%
Natural Sources	17	2%	<1%
Total	***1036***	***100%***	***28%***
Total Statewide	**3678**		

Table 5-24

Carbon Tetrachloride

Stationary sources such as chemical and allied product manufacturers and petroleum refineries account for all of the emissions of carbon tetrachloride.

South Coast - Carbon Tetrachloride			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	**1.95**	**100%**	**53%**
Area-wide Sources	0	0%	0%
On-Road Mobile	0	0%	0%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	0	0%	0%
Other Mobile	0	0%	0%
Natural Sources	0	0%	0%
Total	***1.95***	***100%***	***53%***
Total Statewide	**3.67**		

Table 5-25

Chromium (Hexavalent)

Approximately 95 percent of the chromium (hexavalent) emissions are from stationary sources such as electrical generation, aircraft and parts manufacturing, and fabricated metal product manufacturing.

South Coast - Chromium (Hexavalent)			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	0.65	95%	29%
Area-wide Sources	<.01	<1%	<1%
On-Road Mobile	0	0%	0%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	0	0%	0%
Other Mobile	0.03	5%	2%
Natural Sources	<.01	<1%	<1%
Total	***0.68***	***100%***	***31%***
Total Statewide	**2.20**		

Table 5-26

para-Dichlorobenzene

Most of the emissions of *para*-dichlorobenzene are from consumer products (non-aerosol insect repellants and solid/gel air fresheners).

South Coast - *para*-Dichlorobenzene			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	9	1%	<1%
Area-wide Sources	762	99%	42%
On-Road Mobile	0	0%	0%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	0	0%	0%
Other Mobile	0	0%	0%
Natural Sources	0	0%	0%
Total	***771***	***100%***	***43%***
Total Statewide	**1799**		

Table 5-27

Formaldehyde

Approximately 86 percent of the formaldehyde emissions are from mobile sources.

South Coast - Formaldehyde			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	349	6%	2%
Area-wide Sources	482	8%	2%
On-Road Mobile	2568	45%	12%
Gasoline Vehicles	1954	34%	9%
Diesel Vehicles	613	11%	3%
Other Mobile	2334	41%	11%
Natural Sources	0	0%	0%
Total	***5732***	***100%***	***26%***
Total Statewide	**21771**		

Table 5-28

Methylene Chloride

Approximately 63 percent of the emissions of methylene chloride are from stationary sources such as plastic product manufacturers, manufacturers of synthetics, and aircraft and parts manufacturers.

South Coast - Methylene Chloride			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	2711	63%	33%
Area-wide Sources	1570	37%	19%
On-Road Mobile	0	0%	0%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	0	0%	0%
Other Mobile	0	0%	0%
Natural Sources	0	0%	0%
Total	***4281***	***100%***	***53%***
Total Statewide	**8124**		

Table 5-29

Perchloroethylene

Approximately 82 percent of the emissions of perchloroethylene are from dry cleaning plants, manufacturers of aircraft parts and fabricated metal parts, and other stationary sources.

South Coast - Perchloroethylene			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	4371	82%	36%
Area-wide Sources	928	18%	8%
On-Road Mobile	0	0%	0%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	0	0%	0%
Other Mobile	0	0%	0%
Natural Sources	0	0%	0%
Total	***5299***	***100%***	***44%***
Total Statewide	**12030**		

Table 5-30

Diesel Particulate Matter

Emissions of diesel particulate matter are essentially all from mobile sources (approximately 99 percent).

South Coast - Diesel Particulate Matter			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	95	1%	<1%
Area-wide Sources	0	0%	0%
On-Road Mobile	2178	29%	9%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	2178	29%	9%
Other Mobile	5339	70%	22%
Natural Sources	0	0%	0%
Total	***7611***	***100%***	***31%***
Total Statewide	**24509**		

Table 5-31

South Coast Air Basin

Air Quality and Health Risk

During 1990 to 2000, the ARB monitored ambient toxics concentrations at five sites in the South Coast Air Basin. The sites are located in Burbank, Los Angeles, North Long Beach, Riverside, and Upland. In addition, there are data for 1998 at a site in Fontana. During December 1999, monitoring activities for most of the TACs at Fontana were relocated to Azusa, and this site is now part of the statewide ambient TAC monitoring network. Figure 5-12 shows the estimated annual average health risks for the nine TACs with measured ambient data. As indicated on the graph, the health risk numbers for these nine TACs reflect the year 2000, which is the most recent year for which complete and representative data are available. Also included is an estimate of the health risk from diesel particulate matter for the year 2000.

Based on the estimate of health risk for diesel particulate matter, this TAC presents the most significant risk of the ten TACs. The estimated health risk is 720 excess cancer cases per million people. This is higher than the average statewide health risk for diesel PM.

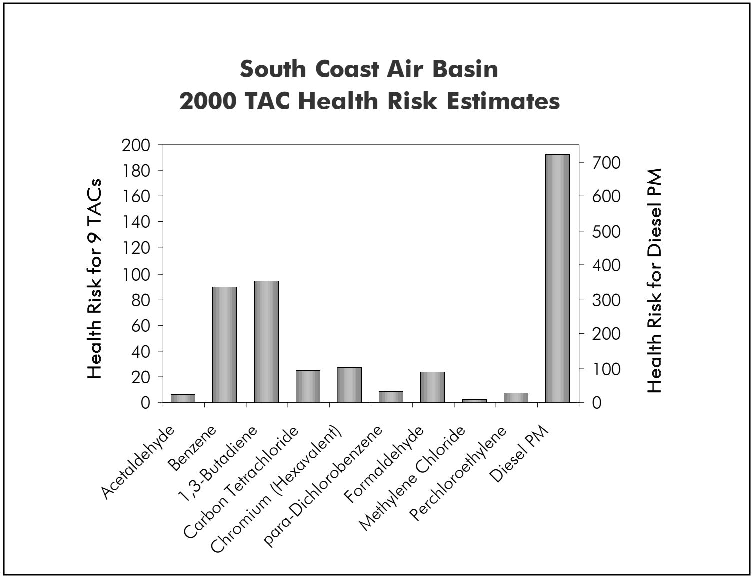


Figure 5-12

Although much smaller by comparison, 1,3-butadiene and benzene also pose substantial health risks as shown in Figure 5-12 and Table 5-32. However, it is important to remember that the health risks shown here are based on an annual average concentration (calculated as a mean of the monthly means) for all sites in the air basin. The health risk at individual locations may be higher or lower than the average for the air basin, depending on the impact of nearby sources. While the average health risks for several of the TACs are high, there have been substantial reductions in concentrations and associated health risks since 1990. Benzene shows the largest reduction (about 72 percent) while perchloroethylene, methylene chloride, chromium (hexavalent), and 1,3-butadiene all show reductions of more than 50 percent. The estimates for diesel particulate matter show a 33 percent decrease between 1990 and the year 2000. The reductions for these six TACs are similar to the average statewide reductions. However, it is important to note that although the percent reductions are similar, the annual averages and associated health risks for almost all the TACs are higher for the South Coast Air Basin than they are statewide. Furthermore, there may be other compounds that pose a significant risk but are not monitored. Reductions in ambient TAC concentrations and health risks should continue, as new rules and regulations are implemented to control toxic air contaminants.

South Coast Air Basin

Annual Average Concentrations and Health Risks

South Coast Air Basin Toxic Air Contaminants - Annual Average Concentrations and Health Risks												
TAC*	**Conc. / Risk**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**
Acetaldehyde	Annual Avg	2.46	3.00	2.46	2.67	2.30	0.97	2.08	1.77	1.54	1.63	1.26
	Health Risk	12	15	12	13	11	5	10	9	7	8	6
Benzene	Annual Avg	3.42	2.91	2.61	2.17	2.40	1.89	1.45	1.34	1.25	1.20	0.97
	Health Risk	317	269	242	201	222	175	134	124	116	111	90
1,3-Butadiene	Annual Avg	0.53	0.45	0.50	0.57	0.50	0.46	0.39	0.38	0.35	0.33	0.25
	Health Risk	200	170	187	212	187	173	146	142	133	123	94
Carbon Tetrachloride	Annual Avg	0.14	0.13		0.11		0.10	0.08		0.11		0.10
	Health Risk	36	35		28		27	21		30		25
Chromium (Hexavalent)	Annual Avg			0.39	0.29	0.29	0.46	0.18	0.17	0.15	0.14	0.18
	Health Risk			59	43	43	69	27	25	22	22	27
para-Dichlorobenzene	Annual Avg		0.17	0.19	0.17	0.13	0.17	0.11	0.13			0.13
	Health Risk		11	13	11	8	11	7	9			9
Formaldehyde	Annual Avg	2.92	3.08	2.22	3.22	3.14	3.57	5.06	4.47	3.79	4.06	3.13
	Health Risk	22	23	16	24	23	26	37	33	28	30	23
Methylene Chloride	Annual Avg	1.86	1.51	0.90	1.23	1.10	1.28	0.95	1.14	0.85	0.92	0.83
	Health Risk	6	5	3	4	4	4	3	4	3	3	3
Perchloroethylene	Annual Avg	0.58	0.55	0.41	0.45	0.39	0.36	0.32	0.27	0.26		0.21
	Health Risk	23	22	16	18	16	15	13	11	10		8
*Diesel Particulate Matter***	*Annual Avg*	*(3.6)*					*(2.7)*					*(2.4)*
	Health Risk	*(1080)*					*(810)*					*(720)*
Average Basin Risk***	Without Diesel PM	616	550	548	554	514	505	398	357	349	297	285
	With Diesel PM	***(1696)***					***(1315)***					***(1005)***

* Concentrations for Chromium (Hexavalent) are expressed as ng/m3 and concentrations for Diesel PM are expressed as ug/m3. Concentrations for all other TACs are expressed as parts per billion.

** Diesel PM concentration estimates are based on receptor modeling techniques, and estimates are available only for selected years.

*** Health Risk represents the number of excess cancer cases per million people based on a lifetime (70-year) exposure to the annual average concentration. It reflects only those compounds listed in this table and only those with data for that year. There may be other significant compounds for which we do not monitor or have health risk information. Additional information about interpreting the toxic air contaminant air quality trends can be found in Chapter 1, *Interpreting the Emission and Air Quality Statistics.*

Table 5-32

San Francisco Bay Area Air Basin

2001 Emission Inventory by Compound

Acetaldehyde

Approximately 77 percent of the emissions of acetaldehyde are from mobile sources. Area-wide sources such as residential wood combustion and agricultural burning contribute approximately 19 percent.

San Francisco Bay Area - Acetaldehyde			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	53	4%	1%
Area-wide Sources	281	19%	3%
On-Road Mobile	377	26%	5%
Gasoline Vehicles	215	15%	3%
Diesel Vehicles	162	11%	2%
Other Mobile	748	51%	9%
Natural Sources	0	0%	0%
Total	***1459***	***100%***	***18%***
Total Statewide	**8239**		

Table 5-33

Benzene

Mobile sources are the primary sources of benzene emissions in the San Francisco Bay Area Air Basin (approximately 92 percent).

San Francisco Bay Area - Benzene			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	207	6%	1%
Area-wide Sources	87	2%	0%
On-Road Mobile	2560	73%	12%
Gasoline Vehicles	2516	72%	12%
Diesel Vehicles	44	1%	0%
Other Mobile	656	19%	3%
Natural Sources	0	0%	0%
Total	***3512***	***100%***	***16%***
Total Statewide	**22022**		

Table 5-34

1,3-Butadiene

Essentially all of the emissions of 1,3-butadiene are from mobile sources.

San Francisco Bay Area - 1,3-Butadiene			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	6	1%	0%
Area-wide Sources	1	0%	0%
On-Road Mobile	368	64%	10%
Gasoline Vehicles	364	63%	10%
Diesel Vehicles	4	1%	0%
Other Mobile	198	34%	5%
Natural Sources	1	0%	0%
Total	***575***	***100%***	***16%***
Total Statewide	**3678**		

Table 5-35

Carbon Tetrachloride

Stationary sources such as chemical and allied product manufacturers and petroleum refineries account for all of the emissions of carbon tetrachloride.

San Francisco Bay Area - Carbon Tetrachloride			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	1.53	100%	42%
Area-wide Sources	0	0%	0%
On-Road Mobile	0	0%	0%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	0	0%	0%
Other Mobile	0	0%	0%
Natural Sources	0	0%	0%
Total	***1.53***	***100%***	***42%***
Total Statewide	**3.67**		

Table 5-36

Chromium (Hexavalent)

Approximately 96 percent of the chromium (hexavalent) emissions are from other mobile sources. Stationary sources such as electrical generation and fabricated metal product manufacturing contribute approximately 4 percent.

San Francisco Bay Area - Chromium (Hexavalent)			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	<.01	4%	<1%
Area-wide Sources	<.01	<1%	<1%
On-Road Mobile	0	0%	0%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	0	0%	0%
Other Mobile	0.24	96%	11%
Natural Sources	<.01	0%	<1%
Total	***0.25***	***100%***	***12%***
Total Statewide	**2.20**		

Table 5-37

para-Dichlorobenzene

Emissions of *para*-dichlorobenzene are essentially all from consumer products (non-aerosol insect repellants and solid/gel air fresheners).

San Francisco Bay Area - *para*-Dichlorobenzene			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	<1	0%	0%
Area-wide Sources	343	100%	19%
On-Road Mobile	0	0%	0%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	0	0%	0%
Other Mobile	0	0%	0%
Natural Sources	0	0%	0%
Total	***344***	***100%***	***19%***
Total Statewide	**1799**		

Table 5-38

Formaldehyde

Approximately 87 percent of the formaldehyde emissions are from mobile sources.

San Francisco Bay Area - Formaldehyde			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	154	4%	1%
Area-wide Sources	337	9%	2%
On-Road Mobile	1300	35%	6%
Gasoline Vehicles	976	26%	4%
Diesel Vehicles	324	9%	1%
Other Mobile	1959	52%	9%
Natural Sources	0	0%	0%
Total	***3750***	***100%***	***17%***
Total Statewide	**21771**		

Table 5-39

Methylene Chloride

Approximately 60 percent of the emissions of methylene chloride are from stationary sources such as plastic product manufacturers, manufacturers of synthetics, and aircraft and parts manufacturers.

San Francisco Bay Area - Methylene Chloride			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	1040	60%	13%
Area-wide Sources	697	40%	9%
On-Road Mobile	0	0%	0%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	0	0%	0%
Other Mobile	0	0%	0%
Natural Sources	0	0%	0%
Total	***1737***	***100%***	***21%***
Total Statewide	**8124**		

Table 5-40

Perchloroethylene

Approximately 78 percent of the emissions of perchloroethylene are from such stationary sources as dry cleaning plants and manufacturers of aircraft parts and fabricated metal parts.

San Francisco Bay Area - Perchloroethylene			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	1494	78%	12%
Area-wide Sources	418	22%	3%
On-Road Mobile	0	0%	0%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	0	0%	0%
Other Mobile	0	0%	0%
Natural Sources	0	0%	0%
Total	***1912***	***100%***	***16%***
Total Statewide	**12030**		

Table 5-41

Diesel Particulate Matter

Emissions of diesel particulate matter are essentially all from mobile sources.

San Francisco Bay Area - Diesel Particulate Matter			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	50	1%	<1%
Area-wide Sources	0	0%	0%
On-Road Mobile	1109	25%	5%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	1109	25%	5%
Other Mobile	3340	75%	14%
Natural Sources	0	0%	0%
Total	***4499***	***100%***	***18%***
Total Statewide	**24509**		

Table 5-42

San Francisco Bay Area Air Basin
Air Quality and Health Risk

Over the last eleven years, the ARB has monitored ambient TAC concentrations at four sites in the San Francisco Bay Area Air Basin. The sites are located in Concord, Fremont, San Francisco, and San Jose. In addition, there was a monitor at Richmond from 1990 through April 1997. This site was relocated to San Pablo and began sampling there in May 1997. At the end of February 2000, TAC monitoring was discontinued at the Concord and San Pablo sites, and additional data from these sites will not be available. Figure 5-13 and Table 5-43 show the estimated annual average health risks for the San Francisco Bay Area Air Basin. The health risk estimates for the nine TACs that are measured in the ambient air reflect the most recent year with complete and representative data -- 2000. In addition, an estimated health risk for diesel particulate matter is given for the year 2000. Of the ten TACs considered in this almanac, diesel particulate matter poses the greatest health risk in this air basin, 480 excess cancer cases per million people exposed over a 70-year lifetime. This is lower than the estimated statewide value for that year.

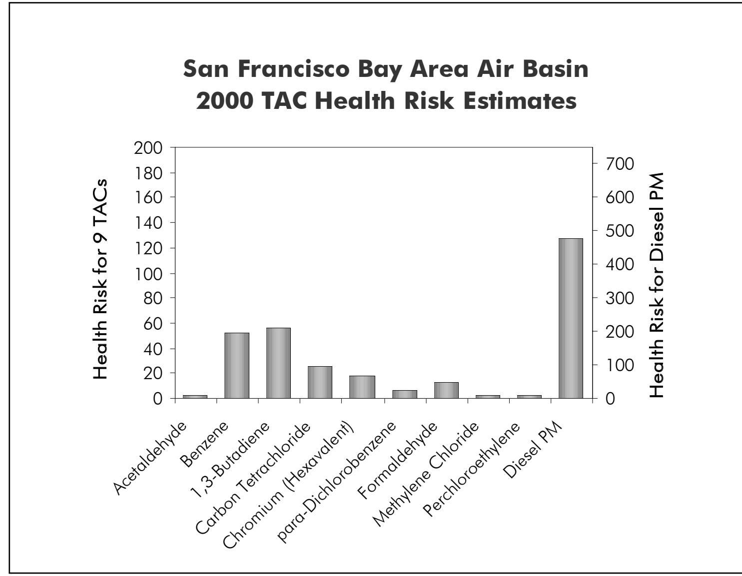


Figure 5-13

Two other TACS, 1,3-butadiene and benzene, also pose substantial health risks. Again, however, it is important to remember that the health risks shown here are based on an average concentration for the entire air basin, and the health risk at individual locations may be higher or lower. Since 1990, the annual average concentrations and health risks from all the TACs have decreased. Of those TACs included in Figure 5-13, benzene, perchloroethylene, 1,3-butadiene, and acetaldehyde all show reductions of 50 percent or more. In most cases, both the average TAC concentration and the average health risk for the San Francisco Bay Area Air Basin are lower than the statewide averages and generally, are much lower than those for the South Coast Air Basin. However, it is important to note that there may be other compounds that pose a significant risk but are not monitored. All compounds show some reduction over the time period, and the reduction for several compounds is fairly substantial. We expect these reductions will continue as additional control measures are implemented.

San Francisco Bay Area Air Basin

Annual Average Concentrations and Health Risks

San Francisco Bay Area Air Basin Toxic Air Contaminants - Annual Average Concentrations and Health Risks												
TAC*	**Conc. / Risk**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**
Acetaldehyde	Annual Avg	1.30	1.40	1.03	1.31	1.17	0.42	0.83	0.73	0.65	0.76	0.68
	Health Risk	6	7	5	6	6	2	4	4	3	4	3
Benzene	Annual Avg	2.18	1.82	1.49	1.49	1.40	1.26	0.71	0.61	0.71	0.60	0.56
	Health Risk	202	169	138	138	129	116	66	56	66	55	52
1,3-Butadiene	Annual Avg	0.36	0.29	0.28	0.37	0.29	0.28	0.22	0.19	0.22	0.17	0.15
	Health Risk	135	108	103	138	108	104	82	70	82	64	56
Carbon Tetrachloride	Annual Avg	0.13	0.13		0.11		0.10	0.08				0.09
	Health Risk	34	33		29		26	21				25
Chromium (Hexavalent)	Annual Avg			0.23	0.20	0.19	0.25	0.13	0.12	0.10	0.10	0.12
	Health Risk			34	29	29	37	19	17	15	15	18
para-Dichlorobenzene	Annual Avg		0.12	0.12	0.12	0.11	0.13	0.14	0.12			0.11
	Health Risk		8	8	8	7	8	9	8			7
Formaldehyde	Annual Avg	1.87	1.73	1.43	1.56	1.66	2.06	2.62	1.85	1.76	2.09	1.77
	Health Risk	14	13	11	11	12	15	19	14	13	15	13
Methylene Chloride	Annual Avg	1.04	2.32	0.65	0.72	0.59	0.60	0.58	0.55			0.53
	Health Risk	4	8	2	2	2	2	2	2			2
Perchloroethylene	Annual Avg	0.20	0.23	0.17	0.13	0.08	0.09	0.07	0.07			0.08
	Health Risk	8	9	7	5	3	4	3	3			3
*Diesel Particulate Matter***	*Annual Avg*	*(2.5)*					*(1.9)*					*(1.6)*
	Health Risk	*(750)*					*(570)*					*(480)*
Average Basin Risk***	Without Diesel PM	403	355	308	366	296	314	225	174	179	153	179
	With Diesel PM	***(1153)***					***(884)***					***(659)***

* Concentrations for Chromium (Hexavalent) are expressed as ng/m3 and concentrations for Diesel PM are expressed as ug/m3. Concentrations for all other TACs are expressed as parts per billion.

** Diesel PM concentration estimates are based on receptor modeling techniques, and estimates are available only for selected years.

*** Health Risk represents the number of excess cancer cases per million people based on a lifetime (70-year) exposure to the annual average concentration. It reflects only those compounds listed in this table and only those with data for that year. There may be other significant compounds for which we do not monitor or have health risk information. Additional information about interpreting the toxic air contaminant air quality trends can be found in Chapter 1, *Interpreting the Emission and Air Quality Statistics.*

Table 5-43

San Joaquin Valley Air Basin

2001 Emission Inventory by Compound

Acetaldehyde

Approximately 78 percent of the emissions of acetaldehyde are from mobile sources. Area-wide sources such as residential wood combustion account for approximately 15 percent.

San Joaquin Valley - Acetaldehyde			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	85	7%	1%
Area-wide Sources	198	15%	2%
On-Road Mobile	296	23%	4%
Gasoline Vehicles	139	11%	2%
Diesel Vehicles	157	12%	2%
Other Mobile	713	55%	9%
Natural Sources	0	0%	0%
Total	***1292***	***100%***	***16%***
Total Statewide	**8239**		

Table 5-44

Benzene

The primary sources of benzene emissions in the San Joaquin Valley Air Basin are mobile sources (approximately 51 percent) and area-wide sources (approximately 37 percent).

San Joaquin Valley - Benzene			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	456	12%	2%
Area-wide Sources	1447	37%	7%
On-Road Mobile	1513	38%	7%
Gasoline Vehicles	1470	37%	7%
Diesel Vehicles	43	1%	0%
Other Mobile	528	13%	2%
Natural Sources	<1	0%	0%
Total	***3945***	***100%***	***18%***
Total Statewide	**22022**		

Table 5-45

1,3-Butadiene

Approximately 73 percent of the emissions of 1,3-butadiene are from mobile sources.

San Joaquin Valley - 1,3-Butadiene			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	3	1%	0%
Area-wide Sources	136	24%	4%
On-Road Mobile	234	42%	6%
Gasoline Vehicles	230	41%	6%
Diesel Vehicles	4	1%	0%
Other Mobile	175	31%	5%
Natural Sources	10	2%	0%
Total	***559***	***100%***	***15%***
Total Statewide	**3678**		

Table 5-46

Carbon Tetrachloride

Emissions of carbon tetrachloride are all from stationary sources such as chemical and allied product manufacturers.

San Joaquin Valley - Carbon Tetrachloride			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	<.01	100%	0%
Area-wide Sources	0	0%	0%
On-Road Mobile	0	0%	0%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	0	0%	0%
Other Mobile	0	0%	0%
Natural Sources	0	0%	0%
Total	***<.01***	***100%***	***0%***
Total Statewide	**3.67**		

Table 5-47

Chromium (Hexavalent)

Approximately 86 percent of the chromium (hexavalent) emissions are from stationary sources such as electrical generation, aircraft and parts manufacturing, and fabricated metal product manufacturing.

San Joaquin Valley - Chromium (Hexavalent)			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	0.31	86%	14%
Area-wide Sources	<.01	<1%	<1%
On-Road Mobile	0	0%	0%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	0	0%	0%
Other Mobile	0.05	14%	2%
Natural Sources	<.01	<1%	<1%
Total	***0.36***	***100%***	***16%***
Total Statewide	**2.20**		

Table 5-48

para-Dichlorobenzene

Most of the emissions of *para*-dichlorobenzene are from consumer products (non-aerosol insect repellants and solid/gel air fresheners).

San Joaquin Valley - *para*-Dichlorobenzene			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	5	3%	0%
Area-wide Sources	172	97%	10%
On-Road Mobile	0	0%	0%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	0	0%	0%
Other Mobile	0	0%	0%
Natural Sources	0	0%	0%
Total	***177***	***100%***	***10%***
Total Statewide	**1799**		

Table 5-49

Formaldehyde

Approximately 76 percent of the formaldehyde emissions are from mobile sources.

San Joaquin Valley - Formaldehyde			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	685	18%	3%
Area-wide Sources	233	6%	1%
On-Road Mobile	955	26%	4%
Gasoline Vehicles	640	17%	3%
Diesel Vehicles	315	8%	1%
Other Mobile	1854	50%	9%
Natural Sources	0	0%	0%
Total	***3727***	***100%***	***17%***
Total Statewide	**21771**		

Table 5-50

Methylene Chloride

Approximately 72 percent of the emissions of methylene chloride are from paint removers/strippers, automotive brake cleaners, and other consumer products.

San Joaquin Valley - Methylene Chloride			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	142	28%	2%
Area-wide Sources	356	72%	4%
On-Road Mobile	0	0%	0%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	0	0%	0%
Other Mobile	0	0%	0%
Natural Sources	0	0%	0%
Total	***497***	***100%***	***6%***
Total Statewide	**8124**		

Table 5-51

Perchloroethylene

Approximately 58 percent of the emissions of perchloroethylene are from such stationary sources as dry cleaning plants and manufacturers of aircraft parts and fabricated metal parts.

San Joaquin Valley - Perchloroethylene			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	293	58%	2%
Area-wide Sources	209	42%	2%
On-Road Mobile	0	0%	0%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	0	0%	0%
Other Mobile	0	0%	0%
Natural Sources	0	0%	0%
Total	***502***	***100%***	***4%***
Total Statewide	**12030**		

Table 5-52

Diesel Particulate Matter

Emissions of diesel particulate matter are from mobile sources (approximately 92 percent) and stationary sources (approximately 5 percent).

San Joaquin Valley - Diesel Particulate Matter			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	204	5%	1%
Area-wide Sources	0	0%	0%
On-Road Mobile	960	24%	4%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	960	24%	4%
Other Mobile	2769	68%	11%
Natural Sources	0	0%	0%
Total	***3933***	***100%***	***16%***
Total Statewide	**24509**		

Table 5-53

San Joaquin Valley Air Basin

Air Quality and Health Risk

During 1990 through 2000, the ARB monitored ambient TAC concentrations at four sites in the San Joaquin Valley Air Basin. The sites are located in Bakersfield, Fresno, Stockton, and Modesto. In addition, complete and representative data for a limited number of TACs are available from a second site in Modesto during 1991 to 1997. At the end of February 2000, TAC monitoring was discontinued at the primary Modesto site, and additional data will not be available. Figure 5-14 and Table 5-54 show the estimated average health risks for all the sites in the San Joaquin Valley Air Basin. As indicated on the figure, health risk numbers for TACs with measured data reflect the year 2000. The estimate given for diesel particulate matter also reflects the year 2000. As in all other areas of the State, the health risk for diesel PM overwhelms the other nine TACs. Based on receptor modeling techniques, the diesel PM health risk for 2000 is estimated at 390 excess cancer cases per one million people exposed over a 70-year lifetime. While this value is lower than the estimated statewide health risk, it is similar to values estimated for other urbanized areas of the State such as

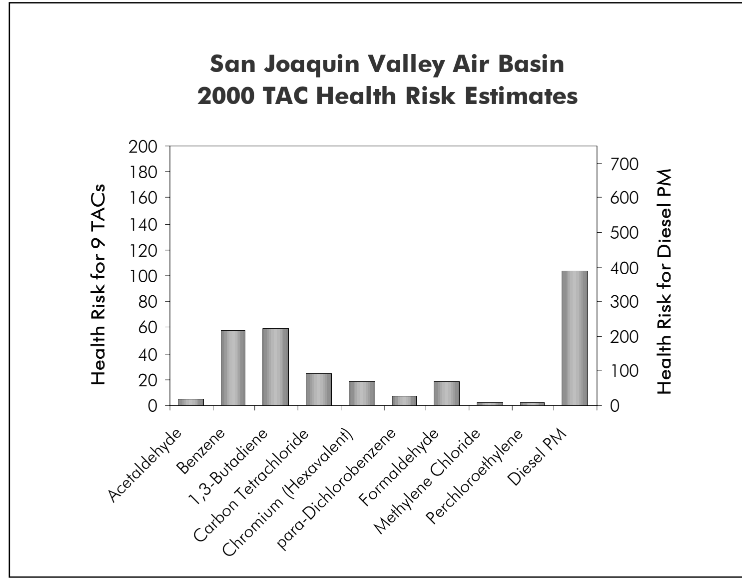


Figure 5-14

the San Francisco Bay Area Air Basin and the Sacramento Valley Air Basin.

Similar to most other areas of the State, Figure 5-14 and Table 5-54 show that of the nine remaining TACs, 1,3-butadiene and benzene pose the greatest health risk, on average, in the San Joaquin Valley Air Basin. Overall, the average concentrations and health risks from all the TACs except *para*-dichlorobenzene and formaldehyde have been reduced since 1990. Benzene and 1,3-butadiene both show more than a 60 percent reduction, and diesel PM shows a reduction equal to 50 percent. Average concentrations and health risks for *para*-dichlorobenzene show no change from 1990 to 2000. In contrast, formaldehyde concentrations and health risks show an increase of 7 percent. This apparent increase may be related to the change in the analysis method for this TAC rather than increases in emissions. Again, as in all other areas of California, it is important to remember that there may be local source impacts, and these may be higher than the air basin averages. Furthermore, there may be other TACs that pose a significant risk in the San Joaquin Valley Air Basin but are not monitored.

San Joaquin Valley Air Basin
Annual Average Concentrations and Health Risks

San Joaquin Valley Air Basin Toxic Air Contaminants - Annual Average Concentrations and Health Risks												
TAC*	**Conc. / Risk**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**
Acetaldehyde	Annual Avg	1.94	1.84	1.38	1.73	1.29	0.54	1.28	1.19	1.30	1.56	1.09
	Health Risk	9	9	7	8	6	3	6	6	6	8	5
Benzene	Annual Avg	2.45	2.11	1.36	1.32	1.33	1.16	0.73	0.71	0.76	0.69	0.63
	Health Risk	227	196	126	122	123	107	68	66	71	64	58
1,3-Butadiene	Annual Avg	0.41	0.36	0.24	0.34	0.32	0.26	0.22	0.20	0.23	0.18	0.16
	Health Risk	154	135	89	127	121	99	83	73	88	67	59
Carbon Tetrachloride	Annual Avg	0.13	0.13		0.11		0.10	0.08		0.11		0.10
	Health Risk	34	34		29		26	20		30		25
Chromium (Hexavalent)	Annual Avg			0.23	0.21	0.19	0.28	0.13	0.11	0.10	0.10	0.12
	Health Risk			34	31	29	42	20	16	15	15	18
para-Dichlorobenzene	Annual Avg		0.11	0.11	0.13	0.11	0.11	0.10	0.13			0.11
	Health Risk		7	7	9	7	8	7	9			7
Formaldehyde	Annual Avg	2.45	1.81	1.46	1.67	1.80	2.10	2.96	2.77	2.86	3.44	2.61
	Health Risk	18	13	11	12	13	15	22	20	21	25	19
Methylene Chloride	Annual Avg	0.76	0.59	0.55	0.76	0.59	0.61	0.54	0.53	0.52	0.50	0.53
	Health Risk	3	2	2	3	2	2	2	2	2	2	2
Perchloroethylene	Annual Avg	0.13	0.13	0.10	0.47	0.07	0.07	0.07	0.06	0.04		0.08
	Health Risk	5	5	4	19	3	3	3	2	2		3
*Diesel Particulate Matter***	*Annual Avg*	*(2.6)*					*(1.7)*					*(1.3)*
	Health Risk	*(780)*					*(510)*					*(390)*
Average Basin Risk***	Without Diesel PM	450	401	280	360	304	305	231	194	235	181	196
	With Diesel PM	***(1230)***					***(815)***					***(586)***

* Concentrations for Chromium (Hexavalent) are expressed as ng/m3 and concentrations for Diesel PM are expressed as ug/m3. Concentrations for all other TACs are expressed as parts per billion.

** Diesel PM concentration estimates are based on receptor modeling techniques, and estimates are available only for selected years.

*** Health Risk represents the number of excess cancer cases per million people based on a lifetime (70-year) exposure to the annual average concentration. It reflects only those compounds listed in this table and only those with data for that year. There may be other significant compounds for which we do not monitor or have health risk information. Additional information about interpreting the toxic air contaminant air quality trends can be found in Chapter 1, *Interpreting the Emission and Air Quality Statistics.*

Table 5-54

San Diego Air Basin

2001 Emission Inventory by Compound

Acetaldehyde

Approximately 77 percent of the emissions of acetaldehyde are from mobile sources.

San Diego - Acetaldehyde			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	23	4%	0%
Area-wide Sources	106	19%	1%
On-Road Mobile	161	28%	2%
Gasoline Vehicles	94	17%	1%
Diesel Vehicles	67	12%	1%
Other Mobile	277	49%	3%
Natural Sources	0	0%	0%
Total	***567***	***100%***	***7%***
Total Statewide	**8239**		

Table 5-55

Benzene

The primary sources of benzene emissions in the San Diego Air Basin are mobile sources (approximately 95 percent).

San Diego - Benzene			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	50	3%	0%
Area-wide Sources	33	2%	0%
On-Road Mobile	1067	73%	5%
Gasoline Vehicles	1049	71%	5%
Diesel Vehicles	18	1%	0%
Other Mobile	321	22%	1%
Natural Sources	0	0%	0%
Total	***1471***	***100%***	***7%***
Total Statewide	**22022**		

Table 5-56

1,3-Butadiene

Approximately 85 percent of the emissions of 1,3-butadiene are from mobile sources.

San Diego - 1,3-Butadiene			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	<1	0%	<1%
Area-wide Sources	4	1%	<1%
On-Road Mobile	162	61%	4%
Gasoline Vehicles	160	61%	4%
Diesel Vehicles	2	1%	<1%
Other Mobile	89	34%	2%
Natural Sources	8	3%	0%
Total	***264***	***100%***	***7%***
Total Statewide	**3678**		

Table 5-57

Carbon Tetrachloride

Stationary sources such as chemical and allied product manufacturers account for all of the emissions of carbon tetrachloride.

San Diego - Carbon Tetrachloride			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	<.01	100%	<1%
Area-wide Sources	0	0%	0%
On-Road Mobile	0	0%	0%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	0	0%	0%
Other Mobile	0	0%	0%
Natural Sources	0	0%	0%
Total	***<.01***	***100%***	***<1%***
Total Statewide	**3.67**		

Table 5-58

Chromium (Hexavalent)

Approximately 80 percent of the chromium (hexavalent) emissions are from other mobile sources. Stationary sources account for approximately 20 percent.

San Diego - Chromium (Hexavalent)			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	0.04	20%	2%
Area-wide Sources	<.01	1%	<1%
On-Road Mobile	0	0%	0%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	0	0%	0%
Other Mobile	0.18	80%	8%
Natural Sources	<.01	0%	<1%
Total	***0.22***	***100%***	***10%***
Total Statewide	**2.20**		

Table 5-59

para-Dichlorobenzene

All of the emissions of *para*-dichlorobenzene are from consumer products (non-aerosol insect repellants and solid/gel air fresheners).

San Diego - *para*-Dichlorobenzene			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	0	0%	0%
Area-wide Sources	150	100%	8%
On-Road Mobile	0	0%	0%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	0	0%	0%
Other Mobile	0	0%	0%
Natural Sources	0	0%	0%
Total	***150***	***100%***	***8%***
Total Statewide	**1799**		

Table 5-60

Formaldehyde

Approximately 86 percent of the formaldehyde emissions are from mobile sources.

San Diego - Formaldehyde			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	92	6%	0%
Area-wide Sources	121	8%	1%
On-Road Mobile	575	37%	3%
Gasoline Vehicles	441	29%	2%
Diesel Vehicles	134	9%	1%
Other Mobile	753	49%	3%
Natural Sources	0	0%	0%
Total	***1542***	***100%***	***7%***
Total Statewide	**21771**		

Table 5-61

Methylene Chloride

Area-wide sources such as paint removers/strippers, automotive brake cleaners, and other consumer products account for approximately 82 percent of the emissions of methylene chloride.

San Diego - Methylene Chloride			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	68	18%	1%
Area-wide Sources	310	82%	4%
On-Road Mobile	0	0%	0%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	0	0%	0%
Other Mobile	0	0%	0%
Natural Sources	0	0%	0%
Total	***378***	***100%***	***5%***
Total Statewide	**8124**		

Table 5-62

Perchloroethylene

Approximately 89 percent of the emissions of perchloroethylene are from stationary sources such as dry cleaning plants, manufacturers of aircraft parts and fabricated metal parts, and other stationary sources.

San Diego - Perchloroethylene			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	1486	89%	12%
Area-wide Sources	182	11%	2%
On-Road Mobile	0	0%	0%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	0	0%	0%
Other Mobile	0	0%	0%
Natural Sources	0	0%	0%
Total	***1668***	***100%***	***14%***
Total Statewide	**12030**		

Table 5-63

Diesel Particulate Matter

Approximately 96 percent of the emissions of diesel particulate matter are from mobile sources.

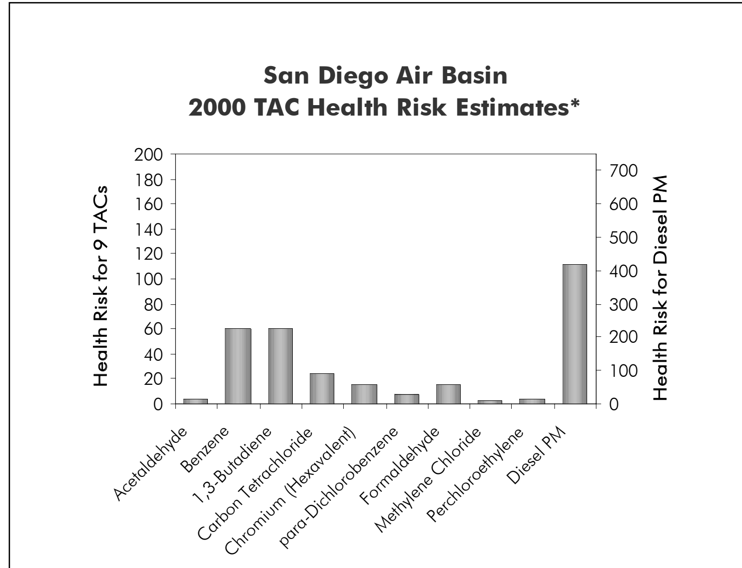
San Diego - Diesel Particulate Matter			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	20	1%	0%
Area-wide Sources	0	0%	0%
On-Road Mobile	436	26%	2%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	436	26%	2%
Other Mobile	1237	73%	5%
Natural Sources	0	0%	0%
Total	***1693***	***100%***	***7%***
Total Statewide	**24509**		

Table 5-64

San Diego Air Basin

Air Quality and Health Risk

During 1990 through 2000, the ARB monitored ambient TAC concentrations at two sites in the San Diego Air Basin. The sites are located in Chula Vista and El Cajon. One additional special study site, located in the Logan Heights/Barrio Logan area of San Diego, operated between October 1999 and February 2001. The Barrio Logan community is located in a large urban area near major freeways, industrial sources, and neighborhood sources such as gas stations, dry cleaners, and automotive repair facilities. Although not included in this almanac, data from the Barrio Logan and other community monitoring studies are being used in support of the ARB Community Health Program.



* Data for *para*-dichlobenzene reflect 1997; data for all other TACs reflect 2000.

Figure 5-15

Figure 5-15 and Table 5-65 show the estimated average health risks for the two San Diego sites in the ambient TAC network. Because of incomplete data, the concentration and health risk estimates for *para*-dichlorobenzene reflect 1997. The health risk estimates for the remaining nine TACs reflect the year 2000. The estimated health risk for diesel PM is 420 excess cancer cases per million people. While the health risk from diesel PM is lower than the estimated statewide value, it is comparable to the annual average estimated for other urbanized areas such as the Sacramento Valley and San Joaquin Valley Air Basins. Furthermore, diesel particulate matter represents the most substantial health risk in the San Diego Air Basin.

Similar to most other areas, Figure 5-15 and Table 5-65 show that aside from diesel particulate matter, benzene and 1,3-butadiene pose the greatest health risks, on average, in the San Diego Air Basin. However, it is important to remember that the health risks shown here are based on an average concentration for the entire air basin, and the health risk at individual locations may be higher or lower, depending on the impact of local sources. Overall, the total average health risk from all the TACs combined have been reduced over the trend period. In contrast to the overall reduction, the health risks for *para*-dichlorobenzene and methylene chloride show little change during 1990 to 2000. Furthermore, although it appears that formaldehyde concentrations and health risk have increased, remember that the analysis method used before 1996 underestimated ambient concentrations, and the data have not been corrected. Based on data analyzed during the last five years, formaldehyde concentrations and health risk have decreased. Of the ten TACs included in Figure 5-15, benzene, perchloroethylene, chromium (hexavalent), diesel PM, and 1,3-butadiene show the greatest reductions: 71 percent, 68 percent, 58 percent, 52 percent, and 52 percent, respectively. Again, as in all other areas of California, it is important to remember that there may be other compounds that pose a significant risk in the San Diego Air Basin but are not monitored. Being near a source of toxics emissions can also increase risk.

San Diego Air Basin
Annual Average Concentrations and Health Risks

San Diego Air Basin Toxic Air Contaminants - Annual Average Concentrations and Health Risks												
TAC*	**Conc. / Risk**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**
Acetaldehyde	Annual Avg	1.33	1.50	1.22	1.41	1.48	0.64	1.03	1.00	0.86	1.04	0.84
	Health Risk	6	7	6	7	7	3	5	5	4	5	4
Benzene	Annual Avg	2.25	1.70	1.48	1.16	1.39	0.98	0.76	0.76	0.76	0.86	0.65
	Health Risk	208	158	137	107	129	90	71	70	70	79	60
1,3-Butadiene	Annual Avg	0.33	0.26	0.26	0.31	0.31	0.24	0.21	0.20	0.20	0.22	0.16
	Health Risk	125	97	97	117	115	91	78	75	74	83	60
Carbon Tetrachloride	Annual Avg	0.13	0.13		0.10		0.10	0.08				0.09
	Health Risk	35	34		27		26	20				25
Chromium (Hexavalent)	Annual Avg			0.24	0.19	0.16	0.18	0.11	0.11	0.10	0.10	0.10
	Health Risk			36	28	23	27	16	16	15	15	15
para-Dichlorobenzene	Annual Avg		0.10	0.11	0.13	0.15	0.12	0.11	0.13			
	Health Risk		7	8	8	10	8	7	8			
Formaldehyde	Annual Avg	1.64	1.53	1.26	1.76	2.25	2.13	2.62	2.62	2.27	2.67	2.23
	Health Risk	12	11	9	13	17	16	19	19	17	20	16
Methylene Chloride	Annual Avg	0.59	0.83	1.34	1.13	0.73	0.63	0.59	0.57		0.53	0.76
	Health Risk	2	3	5	4	3	2	2	2		2	3
Perchloroethylene	Annual Avg	0.28	0.27	0.26	0.20	0.21	0.25	0.15	0.13			0.09
	Health Risk	11	11	11	8	8	10	6	5			4
*Diesel Particulate Matter***	*Annual Avg*	*(2.9)*					*(1.9)*					*(1.4)*
	Health Risk	*(870)*					*(570)*					*(420)*
Average Basin Risk***	Without Diesel PM	399	328	309	319	312	273	224	200	180	204	187
	With Diesel PM	***(1269)***					***(843)***					***(607)***

* Concentrations for Chromium (Hexavalent) are expressed as ng/m3 and concentrations for Diesel PM are expressed as ug/m3. Concentrations for all other TACs are expressed as parts per billion.

** Diesel PM concentration estimates are based on receptor modeling techniques, and estimates are available only for selected years.

*** Health Risk represents the number of excess cancer cases per million people based on a lifetime (70-year) exposure to the annual average concentration. It reflects only those compounds listed in this table and only those with data for that year. There may be other significant compounds for which we do not monitor or have health risk information. Additional information about interpreting the toxic air contaminant air quality trends can be found in Chapter 1, *Interpreting the Emission and Air Quality Statistics.*

Table 5-65

Sacramento Valley Air Basin

2001 Emission Inventory by Compound

Acetaldehyde

Approximately 63 percent of the emissions of acetaldehyde are from mobile sources. Another 36 percent are from area-wide sources, including the burning of wood in residential fireplaces and wood stoves.

Sacramento Valley - Acetaldehyde			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	13	2%	0%
Area-wide Sources	297	36%	4%
On-Road Mobile	174	21%	2%
Gasoline Vehicles	93	11%	1%
Diesel Vehicles	81	10%	1%
Other Mobile	344	42%	4%
Natural Sources	0	0%	0%
Total	***828***	***100%***	***10%***
Total Statewide	**8239**		

Table 5-66

Benzene

The primary sources of benzene emissions in the Sacramento Valley Air Basin are mobile sources (approximately 76 percent).

Sacramento Valley - Benzene			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	148	7%	1%
Area-wide Sources	354	18%	2%
On-Road Mobile	1085	54%	5%
Gasoline Vehicles	1063	53%	5%
Diesel Vehicles	22	1%	0%
Other Mobile	436	22%	2%
Natural Sources	0	0%	0%
Total	***2023***	***100%***	***9%***
Total Statewide	**22022**		

Table 5-67

1,3-Butadiene

Approximately 77 percent of the emissions of 1,3-butadiene are from mobile sources.

Sacramento Valley - 1,3-Butadiene			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	<1	0%	0%
Area-wide Sources	73	21%	2%
On-Road Mobile	159	46%	4%
Gasoline Vehicles	157	45%	4%
Diesel Vehicles	2	1%	0%
Other Mobile	106	31%	3%
Natural Sources	8	2%	0%
Total	***346***	***100%***	***9%***
Total Statewide	**3678**		

Table 5-68

Carbon Tetrachloride

Stationary sources such as chemical and allied product manufacturers account for all of the emissions of carbon tetrachloride.

Sacramento Valley - Carbon Tetrachloride			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	0.06	100%	2%
Area-wide Sources	0	0%	0%
On-Road Mobile	0	0%	0%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	0	0%	0%
Other Mobile	0	0%	0%
Natural Sources	0	0%	0%
Total	**0.06**	**100%**	**2%**
Total Statewide	**3.67**		

Table 5-69

Chromium (Hexavalent)

Approximately 70 percent of the chromium (hexavalent) emissions are from stationary sources such as electrical generation, aircraft and parts manufacturing, and fabricated metal product manufacturing.

Sacramento Valley - Chromium (Hexavalent)			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	0.06	70%	3%
Area-wide Sources	<.01	2%	<1%
On-Road Mobile	0	0%	0%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	0	0%	0%
Other Mobile	0.02	28%	1%
Natural Sources	<.01	<1%	<1%
Total	***0.09***	***100%***	***4%***
Total Statewide	**2.20**		

Table 5-70

para-Dichlorobenzene

Most of the emissions of *para*-dichlorobenzene are from consumer products (non-aerosol insect repellants and solid/gel air fresheners).

Sacramento Valley - para-Dichlorobenzene			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	<1	0%	0%
Area-wide Sources	121	100%	7%
On-Road Mobile	0	0%	0%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	0	0%	0%
Other Mobile	0	0%	0%
Natural Sources	0	0%	0%
Total	***121***	***100%***	***7%***
Total Statewide	**1799**		

Table 5-71

Formaldehyde

Approximately 75 percent of the formaldehyde emissions are from mobile sources, and 17 percent are from area-wide sources.

Sacramento Valley - Formaldehyde			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	161	8%	1%
Area-wide Sources	335	17%	2%
On-Road Mobile	583	29%	3%
Gasoline Vehicles	421	21%	2%
Diesel Vehicles	161	8%	1%
Other Mobile	904	46%	4%
Natural Sources	0	0%	0%
Total	***1982***	***100%***	***9%***
Total Statewide	**21771**		

Table 5-72

Methylene Chloride

Approximately 71 percent of the emissions of methylene chloride are from area-wide sources such as paint removers/strippers, automotive brake cleaners, and other consumer products.

Sacramento Valley - Methylene Chloride			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	100	29%	1%
Area-wide Sources	251	71%	3%
On-Road Mobile	0	0%	0%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	0	0%	0%
Other Mobile	0	0%	0%
Natural Sources	0	0%	0%
Total	***352***	***100%***	***4%***
Total Statewide	**8124**		

Table 5-73

Perchloroethylene

Approximately 85 percent of the emissions of perchloroethylene are from stationary sources such as dry cleaning plants and manufacturers of aircraft parts and fabricated metal parts.

Sacramento Valley - Perchloroethylene			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	832	85%	7%
Area-wide Sources	148	15%	1%
On-Road Mobile	0	0%	0%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	0	0%	0%
Other Mobile	0	0%	0%
Natural Sources	0	0%	0%
Total	***979***	***100%***	***8%***
Total Statewide	**12030**		

Table 5-74

Diesel Particulate Matter

Essentially all of the emissions of diesel particulate matter are from mobile sources.

Sacramento Valley - Diesel Particulate Matter			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	87	4%	0%
Area-wide Sources	0	0%	0%
On-Road Mobile	554	25%	2%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	554	25%	2%
Other Mobile	1594	71%	7%
Natural Sources	0	0%	0%
Total	***2234***	***100%***	***9%***
Total Statewide	**24509**		

Table 5-75

Sacramento Valley Air Basin
Air Quality and Health Risk

Unlike the other air basins described in this almanac, TAC monitoring in the Sacramento Valley Air Basin has not been continuous at any site. TAC concentrations were monitored at the Chico-Salem Street site during 1990 through the middle of 1992. The site was then moved to Chico-Manzanita Avenue. While there was monitoring in the Chico area during all of 1992, an annual average is not included here because neither site has a full year of data. Similarly, TAC concentrations were monitored at the Citrus Heights site during 1990 through part of 1993, when the site was relocated to Roseville. Again, no data are available for the year during which the site was moved because neither site has a full year of data.

Figure 5-16 is based on all data collected in the Sacramento Valley Air Basin and shows the estimated annual average health risks for this area. As shown in the graph, the health risk estimates for the nine TACs measured by the ambient network reflect 2000, the most recent year for which complete and representative data are available. The estimate for diesel PM also reflects 2000. Like all other air basins, diesel particulate matter

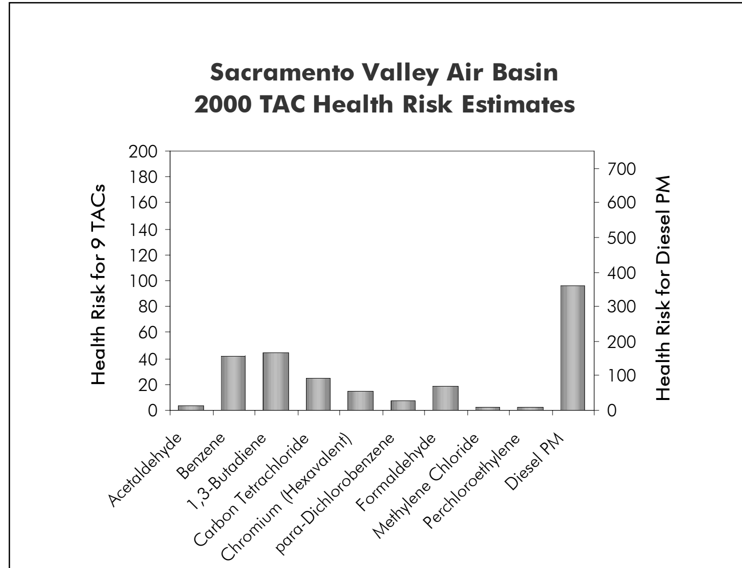


Figure 5-16

poses the greatest health risk among the ten TACs considered in this almanac. Based on receptor modeling techniques, the ARB estimated a year 2000 health risk of 360 excess cancer cases per million people. This is about half the estimated statewide health risk. The estimated health risk for the Sacramento Valley is similar to that for the San Joaquin Valley. However, it is lower than the concentrations estimated for other urban areas including the San Francisco Bay Area Air Basin and the San Diego Air Basin.

In the absence of diesel particulate matter, Figure 5-16 and Table 5-76 show that benzene and 1,3-butadiene pose the greatest health risk, on average, in the Sacramento Valley Air Basin. However, these compounds also show the largest reductions since 1990, 78 percent and 69 percent, respectively. It is important to remember that the health risks shown here are based on an average concentration for only two areas in the air basin, and the health risk at other locations may be higher or lower. Overall, the average concentrations and health risks from all the TACs except formaldehyde have been reduced since 1990. The annual average concentration and health risk for formaldehyde are more than 50 percent higher in 2000 than in 1990. The increase may be attributed in part to the method change implemented in 1996. While the pre-1996 data are included for completeness, a more reasonable approach is to compare the 1996 data with the 2000 data. When doing this, formaldehyde shows a decrease on the order of 9 percent. More years of data are needed to determine if this decrease will continue. Finally, as in all areas of the State, it is important to note that there may be other compounds that are not monitored, but which may pose a substantial health risk in the Sacramento Valley Air Basin.

Sacramento Valley Air Basin

Annual Average Concentrations and Health Risks

Sacramento Valley Air Basin Toxic Air Contaminants - Annual Average Concentrations and Health Risks												
TAC*	**Conc. / Risk**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**
Acetaldehyde	Annual Avg	1.29			1.37	1.04	0.39	1.03	1.05	0.92	1.23	0.83
	Health Risk	6			7	5	2	5	5	4	6	4
Benzene	Annual Avg	2.02	1.88	1.35	1.00	1.02	0.80	0.56	0.55	0.5	0.56	0.45
	Health Risk	187	174	125	92	95	74	51	51	47	52	42
1,3-Butadiene	Annual Avg	0.38	0.33	0.28	0.29	0.22	0.19	0.18	0.16	0.15	0.13	0.12
	Health Risk	142	125	106	108	83	70	66	60	58	48	45
Carbon Tetrachloride	Annual Avg	0.12	0.12		0.11		0.10	0.08				0.09
	Health Risk	33	32		29		26	21				25
Chromium (Hexavalent)	Annual Avg			0.17	0.14	0.13	0.18	0.11	0.10	0.10	0.10	0.10
	Health Risk			26	21	19	26	16	15	15	15	15
para-Dichlorobenzene	Annual Avg			0.11	0.10	0.20	0.14	0.11	0.14			0.10
	Health Risk			7	7	14	9	7	10			7
Formaldehyde	Annual Avg	1.57			1.77	1.75	1.91	2.76	2.92	2.52	3.61	2.51
	Health Risk	12			13	13	14	20	22	19	27	18
Methylene Chloride	Annual Avg	0.65	0.56	0.55	0.98	0.66	0.53	0.54	0.52		0.60	0.57
	Health Risk	2	2	2	3	2	2	2	2		2	2
Perchloroethylene	Annual Avg	0.07	0.07	0.06	0.05	0.17	0.05	0.06	0.05			0.06
	Health Risk	3	3	3	2	7	2	2	2			2
*Diesel Particulate Matter***	*Annual Avg*	*(2.5)*					*(1.6)*					*(1.2)*
	Health Risk	*(750)*					*(480)*					*(360)*
Average Basin Risk***	Without Diesel PM	385	336	269	282	238	225	190	167	143	150	160
	With Diesel PM	***(1135)***					***(705)***					***(520)***

* Concentrations for Chromium (Hexavalent) are expressed as ng/m3 and concentrations for Diesel PM are expressed as ug/m3. Concentrations for all other TACs are expressed as parts per billion.

** Diesel PM concentration estimates are based on receptor modeling techniques, and estimates are available only for selected years.

*** Health Risk represents the number of excess cancer cases per million people based on a lifetime (70-year) exposure to the annual average concentration. It reflects only those compounds listed in this table and only those with data for that year. There may be other significant compounds for which we do not monitor or have health risk information. Additional information about interpreting the toxic air contaminant air quality trends can be found in Chapter 1, *Interpreting the Emission and Air Quality Statistics.*

Table 5-76

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APPENDIX A

County Level Emissions and Air Quality by Air Basin

Appendix A: *County Level Emissions and Air Quality by Air Basin*

List of Tables

List of Tables (continued)

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Introduction

This appendix contains criteria pollutant emission trends and forecasts and air quality trend data for each of California's 15 air basins. The emissions data are summarized first, by county or county portion within the air basin. Emissions data are included for the ozone precursors NO_x and ROG, and also for directly emitted PM_{10} and CO. The values represent the total tons of pollutant emissions per average day, listed every five years, from 1975 to 2010. In addition to these data, tables listing the highest emitting facilities for NO_x, ROG, and PM_{10}, by air basin, are also included. The lists of high emitting facilities consist of only the top ten facilities exceeding 100 tons per year. The emission totals are the most recent data available from the respective district agencies. Some facilities may have reduced or increased emissions since these data were collected, and these changes will be reflected in subsequent editions of the almanac. Finally, the lists do not include military bases, landfills, or airports.

The air quality trend statistics for each county or county portion are also organized alphabetically, by air basin. The time period covered is 1981 through 2000 for ozone, CO, NO_2, and SO_2 and 1988 through 2000 for PM_{10}. Tables for some areas include blanks, indicating that no monitoring data are available or data are incomplete for a given statistic. In a number of cases, tables are completely blank. These blank tables are included for completeness, but the lack of data is noted on the tables.

Air quality statistics can fluctuate from year-to-year because of the influence of meteorology and/or changes in emissions. However, the statistics can also vary because of a change in monitoring site. The air quality statistics reflect the highest value for the statistic at any site in the area. As a result, the statistic may not reflect the same site during the entire trend period. For example, the maximum 8-hour average carbon monoxide concentrations in Imperial County in the Salton Sea Air Basin are below the levels of the State and national standards from 1980 through 1993. In 1994, however, the concentrations show a significant increase, and both the State and national standards are violated. The CO concentrations in this air basin did not suddenly increase during 1994. Instead, monitoring began at a new site in Calexico, and the concentrations at the new site were higher than at the existing set of sites in the Salton Sea Air Basin. Information about the time periods for which air quality data are available for different pollutants at sites in California and Baja, Mexico is available on the web at: *www.arb.ca.gov/aqd/namslams/namslams.htm*.

Since the air quality statistics reflect the highest values in the area, the monitoring sites represented also may not be consistent among the various statistics during a particular year. For example, the monitoring site reflected in the maximum 1-hour ozone concentration may not be the same as the monitoring site reflected in the maximum 8-hour ozone concentration.

Great Basin Valleys Air Basin

County Emission Trends and Forecasts

	NOx Emissions (tons/day, annual average)								ROG Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
Alpine	0	0	0	0	0	0	0	0	1	1	1	1	2	2	2	2
Inyo[1]	5	5	4	4	4	3	3	3	6	7	6	6	5	4	4	4
Mono[1]	2	3	3	3	2	2	2	2	5	6	5	6	6	6	6	6

	PM10 Emissions (tons/day, annual average)								CO Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
Alpine	1	1	1	2	2	2	2	2	3	4	5	6	8	8	8	8
Inyo[1]	1137	1139	1139	1143	1143	1145	1148	1151	44	47	42	40	31	24	20	16
Mono[1]	23	29	34	34	32	33	37	42	32	39	39	37	33	30	30	30

1. These values include emissions from the Owens and Mono Lake Beds.

Table A-1

Great Basin Valleys Air Basin

High Emitting Facilities

Oxides of Nitrogen (NO_x)		
Facility Name	**City**	**Tons per Year**
California Energy Company	Coso Junction	165

Reactive Organic Gases (ROG)		
Facility Name	**City**	**Tons per Year**

No High Emitting Facilities

Particulate Matter (PM_{10})		
Facility Name	**City**	**Tons per Year**

No High Emitting Facilities

Table A-2

Lake County Air Basin

County Emission Trends and Forecasts

	NOx Emissions (tons/day, annual average)								ROG Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
Lake	6	8	9	10	9	8	8	7	10	13	15	14	15	13	12	11

	PM10 Emissions (tons/day, annual average)								CO Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
Lake	5	7	10	10	11	13	14	16	82	100	116	114	108	95	89	80

Table A-3

Lake County Air Basin
High Emitting Facilities

Oxides of Nitrogen (NO_x)		
Facility Name	**City**	**Tons per Year**

No High Emitting Facilities

Reactive Organic Gases (ROG)		
Facility Name	**City**	**Tons per Year**

No High Emitting Facilities

Particulate Matter (PM_{10})		
Facility Name	**City**	**Tons per Year**

No High Emitting Facilities

Table A-4

Lake Tahoe Air Basin

County Emission Trends and Forecasts

	NOx Emissions (tons/day, annual average)								ROG Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
El Dorado[1]	4	4	4	5	4	3	3	3	9	7	7	7	6	6	6	5
Placer[1]	2	1	2	2	2	2	2	1	6	3	4	3	3	3	3	2

	PM_{10} Emissions (tons/day, annual average)								CO Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
El Dorado[1]	2	3	3	3	3	4	4	5	103	81	73	64	53	44	41	37
Placer[1]	1	1	1	1	1	1	2	2	72	33	36	32	27	21	18	15

1. A portion of El Dorado County lies within the Mountain Counties Air Basin. Portions of Placer County lie within the Mountain Counties and Sacramento Valley Air Basins.

Table A-5

Lake Tahoe Air Basin
High Emitting Facilities

Oxides of Nitrogen (NO_x)		
Facility Name	**City**	**Tons per Year**

No High Emitting Facilities

Reactive Organic Gases (ROG)		
Facility Name	**City**	**Tons per Year**

No High Emitting Facilities

Particulate Matter (PM_{10})		
Facility Name	**City**	**Tons per Year**

No High Emitting Facilities

Table A-6

Mojave Desert Air Basin

County Emission Trends and Forecasts

	NOx Emissions (tons/day, annual average)								ROG Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
Kern[1]	43	25	29	40	30	31	31	30	50	37	22	21	13	12	11	11
Los Angeles[1]	23	29	33	41	33	32	27	22	6	22	30	36	26	25	23	23
Riverside[1]	5	4	5	10	6	3	3	2	5	5	5	5	3	2	2	2
San Bernardino[1]	126	159	148	179	162	159	163	169	22	29	38	57	55	47	44	42

	PM10 Emissions (tons/day, annual average)								CO Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
Kern[1]	39	32	27	44	29	31	34	37	559	392	154	118	79	65	57	50
Los Angeles[1]	13	19	25	31	27	33	36	40	92	166	204	251	170	128	98	76
Riverside[1]	3	4	4	5	5	5	5	5	11	9	12	18	14	11	8	7
San Bernardino[1]	34	41	56	62	79	94	115	135	105	190	262	418	343	278	238	198

1. A portion of Kern County lies within the San Joaquin Valley Air Basin. A portion of Los Angeles County lies within the South Coast Air Basin. Portions of Riverside County lie within the Salton Sea and South Coast Air Basins. A portion of San Bernardino County lies within the South Coast Air Basin.

Table A-7

Mojave Desert Air Basin
High Emitting Facilities

Oxides of Nitrogen (NO_x)		
Facility Name	**City**	**Tons per Year**
Riverside Cement Co.	Oro Grande	4838
Cemex- California Cement	Apple Valley	4483
Cal Portland Cement Co.	Mojave	2874
IMC Chemicals, Inc.	Trona	2101
Mitsubishi Cement	Lucerne Valley	1794
National Cement Co.	Lebec	1544
Southern California Gas Company	Needles	1439
Reliant Energy	Daggett	1415
Calaveras Cement Co.	Monolith	1234
AFG Industries Inc (Glass)	Victorville	756

Reactive Organic Gases (ROG)		
Facility Name	**City**	**Tons per Year**
Reliant Energy	Daggett	217
Riverside Cement Co.	Oro Grande	127

Particulate Matter (PM_{10})		
Facility Name	**City**	**Tons per Year**
National Cement Co.	Lebec	756
U.S. Borax	Boron	664
IMC Chemicals, Inc.	Trona	526
Mitsubishi Cement	Lucerne Valley	472
Calaveras Cement Co.	Monolith	404
Cal Portland Cement Co.	Mojave	329
Cemex- California Cement	Apple Valley	277

Table A-8

Mountain Counties Air Basin

County Emission Trends and Forecasts

	NOx Emissions (tons/day, annual average)								ROG Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
Amador	5	6	7	9	9	8	7	7	9	11	11	12	10	10	9	9
Calaveras	4	12	6	7	6	5	5	4	11	11	12	12	13	12	10	9
El Dorado[1]	8	12	12	13	12	10	8	7	16	24	21	20	18	16	14	14
Mariposa	2	2	2	3	3	2	2	2	3	4	5	6	6	6	5	4
Nevada	9	14	13	15	12	10	8	7	12	18	20	19	17	16	15	14
Placer[1]	4	7	5	4	4	4	3	2	3	7	4	4	4	4	4	4
Plumas	13	18	9	10	8	8	7	5	9	12	11	14	16	16	16	16
Sierra	1	1	1	1	1	1	1	1	2	3	3	3	4	4	4	3
Tuolumne	9	11	10	12	11	9	9	8	12	15	15	16	16	14	13	12

	PM10 Emissions (tons/day, annual average)								CO Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
Amador	7	7	6	8	10	11	11	13	63	68	67	78	67	58	57	51
Calaveras	32	11	11	10	11	12	14	16	91	95	92	81	78	67	61	54
El Dorado[1]	7	11	12	13	15	17	20	22	106	175	161	148	130	116	101	94
Mariposa	3	5	5	7	8	8	10	11	22	28	30	33	33	28	25	21
Nevada	7	10	13	16	17	19	22	26	91	127	148	143	122	111	105	100
Placer[1]	3	5	5	6	7	8	9	10	23	27	32	34	30	28	26	25
Plumas	8	12	13	17	18	20	21	23	62	98	79	134	137	137	138	143
Sierra	7	8	9	11	11	12	13	13	24	25	26	29	30	29	30	29
Tuolumne	5	8	7	10	10	10	12	13	86	105	106	122	110	96	89	82

1. A portion of El Dorado County lies within the Lake Tahoe Air Basin. Portions of Placer County lie within the Lake Tahoe and Sacramento Valley Air Basins.

Table A-9

Mountain Counties Air Basin

High Emitting Facilities

Oxides of Nitrogen (NO_x)		
Facility Name	**City**	**Tons per Year**
Pacific-Ultrapower Chinese Station (Wood Products)	Jamestown	235
Wheelabrator Martell Inc. (Electric Services)	Martell	223
Sierra Pacific Industries (Wood Products)	Loyalton	183
Collins Pine Co (Wood Products)	Chester	159
Sierra Pacific Industries (Wood Products)	Standard	144

Reactive Organic Gases (ROG)		
Facility Name	**City**	**Tons per Year**
Ampine (Wood Products)	Martell	257
Jackson Valley Energy Partners (Petroleum Products)	Ione	151
Sierra Pacific Industries (Wood Products)	Quincy	138

Particulate Matter (PM_{10})		
Facility Name	**City**	**Tons per Year**
Ampine (Wood Products)	Martell	565
Sierra Pacific Industries (Wood Products)	Camino	272
Collins Pine Co (Wood Products)	Chester	216
Sierra Pacific Industries (Wood Products)	Standard	178

Table A-10

North Central Coast Air Basin

County Emission Trends and Forecasts

	NOx Emissions (tons/day, annual average)								ROG Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
Monterey	120	133	89	86	67	56	48	41	95	78	74	68	54	47	39	33
San Benito	8	9	9	11	9	8	7	6	10	9	9	10	7	6	6	5
Santa Cruz	19	23	27	31	26	22	19	16	40	40	42	38	31	27	23	20

	PM10 Emissions (tons/day, annual average)								CO Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
Monterey	43	51	45	44	41	43	44	46	716	630	628	555	377	307	260	215
San Benito	11	12	13	15	14	15	16	18	93	96	93	89	72	62	53	47
Santa Cruz	8	10	11	14	13	14	15	16	220	246	258	234	175	141	114	90

Table A-11

North Central Coast Air Basin
High Emitting Facilities

Oxides of Nitrogen (NO_x)		
Facility Name	**City**	**Tons per Year**
Duke Energy Moss Landing	Moss Landing	2222
RMC Pacific Materials (Cement)	Davenport	973
Chemical Lime Company	Salinas	255

Reactive Organic Gases (ROG)		
Facility Name	**City**	**Tons per Year**
Duke Energy Moss Landing	Moss Landing	162
Santa Cruz Cogeneration	Fairfield	129

Particulate Matter (PM_{10})		
Facility Name	**City**	**Tons per Year**
Duke Energy Moss Landing	Moss Landing	223
RMC Pacific Materials (Cement)	Davenport	189
Chemical Lime Company	Salinas	122

Table A-12

North Coast Air Basin

County Emission Trends and Forecasts

	NOx Emissions (tons/day, annual average)								ROG Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
Del Norte	5	6	5	5	4	3	3	3	7	8	7	7	6	6	6	6
Humboldt	37	39	33	35	28	23	21	18	63	38	30	29	24	22	19	17
Mendocino	21	20	20	21	17	15	13	11	28	24	20	19	17	15	14	12
Sonoma[1]	14	21	24	26	23	21	18	14	10	20	19	21	19	15	13	10
Trinity	2	3	3	3	3	2	2	2	5	7	5	6	6	6	5	5

	PM10 Emissions (tons/day, annual average)								CO Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
Del Norte	3	6	8	9	10	11	12	13	49	64	96	101	97	100	104	110
Humboldt	22	27	25	23	22	23	24	26	272	311	254	239	193	170	155	141
Mendocino	16	14	15	18	19	21	23	25	149	144	144	142	118	97	85	72
Sonoma[1]	4	4	5	8	6	7	7	7	55	146	156	152	125	98	81	64
Trinity	8	11	12	17	17	19	21	23	30	38	36	70	63	62	63	63

1. A portion of Sonoma County lies within the San Francisco Bay Area Air Basin.

Table A-13

North Coast Air Basin

High Emitting Facilities

Oxides of Nitrogen (NO_x)		
Facility Name	**City**	**Tons per Year**
Louisiana-Pacific Corp. (Wood Products)	Samoa	392
PG&E-Humboldt Bay Plant	Eureka	286
Pacific Lumber Company (Wood Products)	Scotia	266
Louisiana-Pacific Corp. (Wood Products)	Arcata	248
Fairhaven Power Company	Fairhaven	137
Masonite Hardboard Division	Ukiah	145

Reactive Organic Gases (ROG)		
Facility Name	**City**	**Tons per Year**

No High Emitting Facilities

Particulate Matter (PM_{10})		
Facility Name	**City**	**Tons per Year**
Masonite Hardboard Division	Ukiah	184
Louisiana-Pacific Corp. (Wood Products)	Samoa	145
Louisiana-Pacific Corp. (Wood Products)	Arcata	102

Table A-14

Northeast Plateau Air Basin

County Emission Trends and Forecasts

	NOx Emissions (tons/day, annual average)								ROG Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
Lassen	9	9	9	8	8	7	6	5	8	12	12	12	12	12	11	11
Modoc	7	9	5	5	5	4	4	3	11	13	10	10	5	3	3	3
Siskiyou	23	22	19	18	15	12	10	8	19	24	22	26	25	23	22	22

	PM10 Emissions (tons/day, annual average)								CO Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
Lassen	13	15	18	21	23	24	27	29	53	73	75	73	74	66	62	59
Modoc	19	21	17	18	18	19	20	22	22	26	25	28	24	20	19	17
Siskiyou	18	24	22	32	34	35	37	40	153	189	174	302	292	287	293	307

Table A-15

Northeast Plateau Air Basin
High Emitting Facilities

Oxides of Nitrogen (NO_x)		
Facility Name	**City**	**Tons per Year**
H.L. Power Co.	Wendel	150

Reactive Organic Gases (ROG)		
Facility Name	**City**	**Tons per Year**

No High Emitting Facilities

Particulate Matter (PM_{10})		
Facility Name	**City**	**Tons per Year**

No High Emitting Facilities

Table A-16

Sacramento Valley Air Basin

County Emission Trends and Forecasts

	NO_x Emissions (tons/day, annual average)								ROG Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
Butte	28	33	32	33	29	24	21	17	39	41	39	39	34	29	27	25
Colusa	7	12	6	11	13	9	8	8	11	14	10	11	10	9	8	8
Glenn	14	13	11	13	12	9	8	7	13	14	13	13	11	9	9	9
Placer[1]	20	25	26	27	24	22	18	14	32	32	31	28	28	27	22	21
Sacramento	122	133	141	147	124	109	86	66	192	189	172	142	119	97	78	69
Shasta	35	40	38	41	35	30	28	24	32	38	37	35	31	28	25	23
Solano[1]	12	15	14	16	14	12	10	8	13	19	18	20	18	17	16	16
Sutter	17	20	15	17	15	13	12	10	19	19	26	19	16	14	13	12
Tehama	19	26	17	14	12	11	9	8	11	13	12	12	10	8	7	7
Yolo	26	28	28	31	27	26	20	15	37	43	36	25	22	20	17	16
Yuba	13	15	12	11	11	9	8	7	13	16	13	12	11	10	9	8

	PM_{10} Emissions (tons/day, annual average)								CO Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
Butte	29	30	27	32	30	30	33	36	305	269	268	269	214	169	147	126
Colusa	30	29	24	27	24	23	25	27	112	110	109	107	82	61	58	55
Glenn	25	32	21	21	18	18	19	20	101	107	104	97	76	58	55	51
Placer[1]	6	7	9	12	12	14	15	17	181	225	220	201	176	153	125	110
Sacramento	25	32	36	44	43	49	53	57	1335	1326	1272	1049	776	612	441	339
Shasta	21	22	24	28	29	32	35	39	249	288	314	312	263	236	225	213
Solano[1]	9	10	9	10	11	11	12	13	63	102	98	100	74	60	48	39
Sutter	22	24	20	21	19	19	21	22	139	144	141	138	107	83	76	69
Tehama	9	12	12	14	14	15	16	18	72	85	80	86	67	53	47	41
Yolo	34	31	26	29	30	34	35	37	212	206	202	165	122	93	72	59
Yuba	8	8	7	8	9	9	10	11	95	106	91	87	72	60	54	47

1. Portions of Placer County lie within the Lake Tahoe and Mountain Counties Air Basins. A portion of Solano County lies within the San Francisco Bay Area Air Basin.

Table A-17

Sacramento Valley Air Basin
High Emitting Facilities

Oxides of Nitrogen (NOx)		
Facility Name	**City**	**Tons per Year**
Calaveras Cement Company	Redding	581
PG&E Delevan Compressor Station	Colusa	433
Wheelabrator Energy Systems (Electric Services)	Anderson	430
Wheelabrator Lassen (Electric Services)	Anderson	273
PG & E - Burney Station	Burney	241
Spreckels Sugar Company	Woodland	210
Greenleaf Unit One (Electric Services)	Yuba City	191
Burney Forest Products	Burney	170
Wadham Energy Ltd Partner	Williams	165
Sierra Pacific Industries	Lincoln	164

Reactive Organic Gases (ROG)		
Facility Name	**City**	**Tons per Year**
Premier Industries (Foam Products)	Dixon	438
Johns-Manville (Insulation)	Willows	162

Table A-18

Sacramento Valley Air Basin

High Emitting Facilities

Particulate Matter (PM_{10})		
Facility Name	**City**	**Tons per Year**
Johns-Manville (Insulation)	Willows	249
Calaveras Cement Company	Redding	143
Spreckels Sugar Company	Woodland	128
Sutter Rice Co.	Sutter	118
J. F. Shea (Asphalt Paving)	Fawndale	112

Table A-18 (continued)

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Salton Sea Air Basin

County Emission Trends and Forecasts

	NOx Emissions (tons/day, annual average)								ROG Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
Imperial	54	46	39	41	44	37	34	32	36	37	30	32	27	26	25	24
Riverside[1]	32	34	38	39	33	29	21	16	31	32	34	41	30	24	18	14

	PM_{10} Emissions (tons/day, annual average)								CO Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
Imperial	270	252	202	245	229	237	247	258	217	218	193	209	181	137	119	102
Riverside[1]	20	22	23	31	29	27	26	27	259	267	290	308	236	180	127	97

1. Portions of Riverside County lie within the Mojave Desert and South Coast Air Basins.

Table A-19

Salton Sea Air Basin

High Emitting Facilities

Oxides of Nitrogen (NO_x)		
Facility Name	**City**	**Tons per Year**
Imperial Irrigation District	El Centro	418
Holly Sugar Co.	Brawley	210

Reactive Organic Gases (ROG)		
Facility Name	**City**	**Tons per Year**

No High Emitting Facilities

Particulate Matter (PM_{10})		
Facility Name	**City**	**Tons per Year**
Santa Fe Pacific Gold Corp. (Gold Ore)	Brawley	198
U.S. Gypsum	Plaster City	156

Table A-20

San Diego Air Basin

County Emission Trends and Forecasts

	NOx Emissions (tons/day, annual average)								ROG Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
San Diego	275	278	289	321	276	235	191	154	412	420	391	332	275	226	195	182

	PM10 Emissions (tons/day, annual average)								CO Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
San Diego	71	84	90	113	112	120	131	140	3076	2956	2861	2468	1809	1382	1020	799

Table A-21

San Diego Air Basin
High Emitting Facilities

Oxides of Nitrogen (NO_x)		
Facility Name	**City**	**Tons per Year**
Cabrillo Power Inc.	Carlsbad	1033
Duke Energy South Bay	Chula Vista	747
Kelco / Nutrasweet Kelco (Pharmaceuticals)	San Diego	124
Applied Energy	San Diego	103

Reactive Organic Gases (ROG)		
Facility Name	**City**	**Tons per Year**
ISP Alginates (Food & Industrial Products)	San Diego	289
Kelco / Nutrasweet Kelco (Pharmaceuticals)	San Diego	256
National Steel & Shipbuilding	San Diego	202

Particulate Matter (PM_{10})		
Facility Name	**City**	**Tons per Year**
Cabrillo Power Inc.	Carlsbad	186
Duke Energy South Bay	Chula Vista	107

Table A-22

San Francisco Bay Area Air Basin

County Emission Trends and Forecasts

	NOx Emissions (tons/day, annual average)								ROG Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
Alameda	168	167	177	170	143	124	103	81	282	269	227	170	142	115	94	82
Contra Costa	266	250	205	188	159	132	114	98	230	240	185	128	113	92	78	69
Marin	29	30	30	28	24	19	16	12	53	52	45	33	28	23	18	15
Napa	14	14	15	15	14	12	11	8	24	23	20	17	16	14	11	9
San Francisco	103	114	105	104	85	78	67	56	135	132	109	79	65	52	43	37
San Mateo	99	99	95	92	82	66	58	48	159	153	126	91	78	58	47	41
Santa Clara	204	210	195	190	169	145	123	97	343	343	275	197	169	136	113	98
Solano[1]	40	49	44	45	40	33	33	28	53	62	52	41	34	29	26	23
Sonoma[1]	29	33	33	34	31	25	21	15	60	60	52	42	38	32	26	22

	PM10 Emissions (tons/day, annual average)								CO Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
Alameda	26	25	30	32	33	34	36	38	1783	1687	1484	1105	801	594	452	337
Contra Costa	31	32	28	28	28	28	29	30	1207	1147	1039	786	607	443	347	262
Marin	5	6	6	7	7	8	8	9	377	364	309	233	173	130	99	72
Napa	5	4	6	6	7	6	7	7	134	132	124	108	95	78	63	48
San Francisco	10	11	12	13	14	14	14	15	853	836	711	500	364	271	215	168
San Mateo	13	13	16	17	17	19	21	22	1134	1076	876	633	481	315	246	186
Santa Clara	35	36	40	45	47	50	53	55	2213	2175	1816	1349	1030	780	608	466
Solano[1]	9	11	11	12	12	13	13	14	289	312	289	232	167	134	106	80
Sonoma[1]	8	9	10	11	12	12	13	13	393	402	364	296	247	190	147	107

1. A portion of Solano County lies within the Sacramento Valley Air Basin. A portion of Sonoma County lies within the North Coast Air Basin.

Table A-23

San Francisco Bay Area Air Basin

High Emitting Facilities

Oxides of Nitrogen (NO_x)		
Facility Name	**City**	**Tons per Year**
Martinez Refining Company	Martinez	3166
Valero Refining	Benicia	2927
Ultramar, Inc. Avon Refinery	Martinez	2659
Chevron Products Company	Richmond	2627
Southern Energy California	Pittsburg	1579
Hanson Permanente Cement	Cupertino	1400
Tosco Rodeo Refinery	Rodeo	1161
Southern Energy California	Antioch	1157
Owens Brockway Glass Container	Oakland	682
Tosco Refining Company	Rodeo	621

Reactive Organic Gases (ROG)		
Facility Name	**City**	**Tons per Year**
Chevron Products Company	Richmond	2365
Martinez Refining Company	Martinez	1702
Ultramar, Inc. Avon Refinery	Martinez	1563
Tosco Rodeo Refinery	Rodeo	613
New United Motor Manufacturing	Fremont	474
Valero Refining	Benicia	242
Pacific Custom Materials	Port Costa	131
United States Pipe & Foundry	Union City	119
Advanced Dielectrics, Inc	Fremont	109

Table A-24

San Francisco Bay Area Air Basin

High Emitting Facilities

Particulate Matter (PM_{10})		
Facility Name	**City**	**Tons per Year**
Martinez Refining Company	Martinez	379
Valero Refining	Benicia	186
Chevron Products Company	Richmond	176
Ultramar, Inc. Avon Refinery	Martinez	168
Hanson Permanente Cement	Cupertino	117
Owens Brockway Glass Container	Oakland	114

Table A-24 (continued)

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San Joaquin Valley Air Basin

County Emission Trends and Forecasts

	NOx Emissions (tons/day, annual average)								ROG Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
Fresno	110	133	142	177	157	124	102	84	149	149	139	126	107	95	85	80
Kern[1]	208	304	281	250	187	157	138	129	455	546	464	190	116	108	103	100
Kings	32	27	29	36	34	26	21	19	33	30	26	26	25	22	21	21
Madera	29	39	34	35	33	30	28	25	37	26	23	23	21	19	18	17
Merced	41	48	42	49	44	40	35	28	44	45	39	43	39	38	37	36
San Joaquin	91	97	105	109	99	89	75	63	91	90	84	77	69	60	51	47
Stanislaus	49	63	62	74	65	57	48	39	78	80	75	79	73	70	65	64
Tulare	54	65	63	64	60	54	48	39	63	65	63	61	59	64	62	60

	PM10 Emissions (tons/day, annual average)								CO Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
Fresno	106	126	128	129	127	126	132	135	813	817	802	746	608	491	375	300
Kern[1]	67	79	78	71	68	70	72	74	710	859	755	661	513	413	317	257
Kings	27	35	35	35	35	35	35	35	132	132	116	110	104	83	68	54
Madera	19	25	24	24	24	24	24	25	148	170	170	157	126	106	92	77
Merced	39	46	47	49	47	49	50	51	284	292	256	276	216	212	191	163
San Joaquin	40	47	47	48	47	47	47	48	534	554	573	516	420	333	248	198
Stanislaus	30	38	38	42	39	43	45	46	353	361	360	398	312	267	205	163
Tulare	39	49	50	52	54	71	75	77	376	401	405	367	311	376	340	296

1. A portion of Kern County lies within the Mojave Desert Air Basin.

Table A-25

San Joaquin Valley Air Basin

High Emitting Facilities

Oxides of Nitrogen (NO_x)		
Facility Name	**City**	**Tons per Year**
Aera Energy	Bakersfield	1316
Libbey Owens Ford Co (Glass Products)	Lathrop	1249
Guardian Industries Corp	Kingsburg	1200
Owens-Brockway Glass Container	Tracy	702
Kern River Cogeneration Co.	Bakersfield	602
Pacific Gas & Electric Co	Avenal	540
Madera Glass	Madera	500
Occidental Petroleum	Elk Hills	489
Texaco Inc.	Bakersfield	467
Aera Energy	Bakersfield	460

Reactive Organic Gases (ROG)		
Facility Name	**City**	**Tons per Year**
Occidental Petroleum	Elk Hills	1137
Golden Bear Oil Specialties	Bakersfield	269
Silgan Containers Corp.	Riverbank	235
Kern Oil & Refining Co.	Bakersfield	219
Eott Energy	Bakersfield	157
Equilon Enterprises (Petroleum)	Bakersfield	124
J. G. Boswell Company Oil M	Corcoran	117
Nuevo Energy Company	Fresno County	114
Pactiv Corp. (Foam Products)	Bakersfield	102

Table A-26

San Joaquin Valley Air Basin

High Emitting Facilities

Particulate Matter (PM_{10})		
Facility Name	**City**	**Tons per Year**
Port Of Stockton	Stockton	536
Kern Oil & Refining Co.	Bakersfield	377
Texaco Inc.	Bakersfield	326
Foster Poultry Farms-feed	Delhi	289
Stewart & Nuss, Inc.	Fresno	210
Holly Sugar Corporation	Tracy	207
Aera Energy	Bakersfield	132
Aera Energy	Bakersfield	129

Table A-26 (continued)

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South Central Coast Air Basin

County Emission Trends and Forecasts

	NO_x Emissions (tons/day, annual average)								ROG Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
San Luis Obispo	66	67	46	48	33	29	25	21	37	43	45	39	33	29	26	24
Santa Barbara	51	67	62	61	50	43	37	30	72	70	74	68	53	44	37	34
Ventura	91	103	90	83	65	53	44	35	103	112	100	92	75	63	52	45

	PM_{10} Emissions (tons/day, annual average)								CO Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
San Luis Obispo	16	20	22	26	28	31	34	37	236	267	286	272	209	178	154	132
Santa Barbara	12	15	15	18	18	20	21	22	416	423	438	410	299	230	179	137
Ventura	26	23	23	25	25	26	27	27	497	578	574	518	400	306	223	174

Table A-27

South Central Coast Air Basin
High Emitting Facilities

Oxides of Nitrogen (NO_x)

Facility Name	City	Tons per Year
Duke Energy Morro Bay	Morro Bay	1685
Orcutt Hill IC Engines (Petroleum)	Santa Maria	307
Mandalay Power Station	Oxnard	201
Procter & Gamble Paper Products	Oxnard	168
Celite (Minerals)	Lompoc	140
SCE-Ormond Beach Gen. Station	Oxnard	137
Cat Canyon IC Engines (Petroleum)	Cat Canyon Fields	126
Tosco Santa Maria Refinery	Arroyo Grande	105

Reactive Organic Gases (ROG)

Facility Name	City	Tons per Year
Aera Energy	Ventura	186
Duke Energy Morro Bay	Morro Bay	142

Particulate Matter (PM_{10})

Facility Name	City	Tons per Year
Duke Energy Morro Bay	Morro Bay	195
Celite (Minerals)	Lompoc	181
Tosco Santa Maria Refinery	Arroyo Grande	110

Table A-28

South Coast Air Basin

County Emission Trends and Forecasts

	NOx Emissions (tons/day, annual average)								ROG Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
Los Angeles[1]	1269	1181	1225	1070	857	681	521	409	1823	1485	1444	1103	834	614	443	371
Orange	270	288	320	288	234	205	166	131	435	423	426	327	246	198	146	127
Riverside[1]	85	99	109	135	121	106	88	70	109	111	120	117	104	90	71	63
San Bernardino[1]	127	141	146	145	127	109	89	71	150	165	171	149	125	103	80	71

	PM10 Emissions (tons/day, annual average)								CO Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
Los Angeles[1]	167	168	183	209	192	172	168	170	11359	8954	8855	6847	5045	3656	2539	1932
Orange	44	55	62	70	68	70	69	71	2439	2318	2362	1905	1467	1105	824	657
Riverside[1]	42	49	54	66	70	71	70	75	703	754	819	847	701	560	430	347
San Bernardino[1]	38	41	42	53	57	51	53	56	997	1119	977	873	705	563	437	360

1. A portion of Los Angeles County lies within the Mojave Desert Air Basin. Portions of Riverside County lie within the Mojave Desert and Salton Sea Air Basins. A portion of San Bernardino County lies within the Mojave Desert Air Basin.

Table A-29

South Coast Air Basin

High Emitting Facilities

Oxides of Nitrogen (NO_x)		
Facility Name	**City**	**Tons per Year**
Chevron Products Co.	El Segundo	1751
Mobil Oil Corp	Torrance	1651
Arco Products Co.	Carson	1495
AES Alamitos, LLC	Long Beach	1064
California Portland Cement	Colton	1016
Equilon Enterprises LLC (Refinery)	Wilmington	1006
Tosco Refining Company	Wilmington	838
Reliant Energy Etiwanda	Etiwanda	732
El Segundo Power, LLC	El Segundo	729
So. Cal. Edison Co.	Long Beach	718

Reactive Organic Gases (ROG)		
Facility Name	**City**	**Tons per Year**
Chevron Products Co.	El Segundo	695
Mobil Oil Corp	Torrance	641
Arco Products Co.	Carson	452
Equilon Enterprises LLC (Refinery)	Wilmington	446
So. Cal. Gas Co.	Valencia	429
MCP Foods Inc. (Food Products)	Anaheim	304
Laso Bathwares, Inc.	Anaheim	280
Tosco Refining Company	Wilmington	276
TABC Inc. (Auto Parts)	Long Beach	230
Shell Oil Products Co	Carson	210

Table A-30

South Coast Air Basin

High Emitting Facilities

Particulate Matter (PM_{10})		
Facility Name	**City**	**Tons per Year**
Arco Products Co.	Carson	264
Chevron Products Co.	El Segundo	250
Johns Manville Corp.	Corona	200
Equilon Enterprises LLC (Refinery)	Wilmington	190
Tosco Refining Company	Wilmington	184
Mobil Oil Corp	Torrance	177
Ultramar Inc.	Wilmington	141
California Portland Cement	Colton	108
Tosco Refining Company	Carson	103

Table A-30 (continued)

Air Quality

This section contains air quality trend data for each county in California's 15 air basins, organized alphabetically, by air basin. It is important to note that some counties are located in more than one air basin. For these counties, the air quality data are for that portion of the county located in each air basin. The time period covered is 1981 through 2000 for ozone, CO, NO_2, and SO_2 and 1988 through 2000 for PM_{10}. In some areas, no monitoring data are available or the data are incomplete. Tables for these areas are included, but the lack of data is noted on the tables.

Great Basin Valleys Air Basin

County: Alpine

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator																				
National 1-Hr. Design Value																				
Nat. 8-Hr. Design Value																				
Maximum 1-Hr. Concentration																				
Max. 8-Hr. Concentration																				
Days Above State Standard																				
Days Above Nat. 1-Hr. Std.																				
Days Above Nat. 8-Hr. Std.																				

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993					1998	1999	2000
Max. 24-Hour Concentration																				
Max. Annual Geometric Mean																				
Calc Days Above State 24-Hr Std																				
Calc Days Above Nat 24-Hr Std																				

No Monitoring Data Available

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987					1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. 8-Hr. Concentration																				
Days Above State 8-Hr. Std.																				
Days Above Nat. 8-Hr. Std.																				

NITROGEN DIOXIDE (ppm)	1981	1982	1983			1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average																				

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

Table A-31

Great Basin Valleys Air Basin

County: Inyo

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator	0.088											0.083	0.083	0.097	0.097	0.094	0.090	0.092	0.090	0.090
National 1-Hr. Design Value	0.080										0.040	0.080	0.080	0.093	0.093	0.093	0.086	0.088	0.089	0.090
Nat. 8-Hr. Design Value	0.067										0.040	0.055	0.060	0.068	0.064	0.076	0.074	0.079	0.079	0.080
Maximum 1-Hr. Concentration	0.080										0.050	0.080	0.080	0.101	0.085	0.095	0.084	0.092	0.094	0.090
Max. 8-Hr. Concentration	0.073										0.041	0.076	0.077	0.089	0.073	0.082	0.080	0.085	0.089	0.080
Days Above State Standard	0										0	0	0	2	0	1	0	0	0	0
Days Above Nat. 1-Hr. Std.	0										0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0										0	0	0	3	0	0	0	1	1	0

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration								394	1861	866	181	526	781	388	692	397	402	1116	514	715
Max. Annual Geometric Mean								23.3	24.1	15.2	17.9	16.4	16.8	22.2	11.5	20.1	12.4	19.6	13.9	17.4
Calc Days Above State 24-Hr Std								78	72	30	33	36	36	42	24	21	32	78	19	48
Calc Days Above Nat 24-Hr Std								12	24	12	6	18	6	6	12	6	14	16	8	12

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator												3.5	3.2	3.1	2.9					
Max. 1-Hr. Concentration											6.0	11.0	5.0	5.0	4.0					
Max. 8-Hr. Concentration											3.6	3.8	2.8	2.8	2.0					
Days Above State 8-Hr. Std.											0	0	0	0	0					
Days Above Nat. 8-Hr. Std.											0	0	0	0	0					

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-32

Great Basin Valleys Air Basin

County: Mono

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator		0.094	0.091	0.096	0.094	0.100	0.099	0.100	0.099	0.100	0.099	0.115	0.110	0.108	0.097	0.099	0.096	0.095		
National 1-Hr. Design Value		0.080	0.090	0.090	0.090	0.100	0.100	0.100	0.100	0.100	0.090	0.120	0.120	0.120	0.100	0.100	0.091	0.090		
Nat. 8-Hr. Design Value		0.072	0.076	0.078	0.079	0.082	0.084	0.086	0.081	0.081	0.076	0.081	0.078	0.082	0.079	0.079	0.077	0.073		
Maximum 1-Hr. Concentration		0.090	0.090	0.090	0.100	0.100	0.100	0.100	0.080	0.100	0.090	0.150	0.090	0.120	0.110	0.090	0.092	0.079		
Max. 8-Hr. Concentration		0.082	0.087	0.087	0.090	0.093	0.091	0.098	0.077	0.091	0.073	0.103	0.077	0.092	0.101	0.090	0.078	0.075		
Days Above State Standard		0	0	0	1	5	4	3	0	2	0	5	0	2	2	0	0	0		
Days Above Nat. 1-Hr. Std.		0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0		
Days Above Nat. 8-Hr. Std.		0	1	2	2	13	2	6	0	3	0	9	0	3	2	1	0	0		

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration								166	163	161	134	493	981	92	122	158	112	106	133	3059
Max. Annual Geometric Mean								27.9	11.9	29.0	11.6	28.9	25.7	23.4	21.0	11.6	20.0	6.9	11.1	11.7
Calc Days Above State 24-Hr Std								78	66	78	48	69	60	60	36	18	36	18	3	20
Calc Days Above Nat 24-Hr Std								6	6	12	0	6	9	0	0	6	0	0	0	13

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator	8.5	8.6	7.7		7.3	7.2	7.0	5.9	5.8	5.7	5.6		5.0	4.7	4.6	4.0	4.0	3.9		2.9
Max. 1-Hr. Concentration	13.0	18.0	14.0	13.0	16.0	11.0	9.0	13.0	12.0	10.0	11.0	8.0	13.0	9.0	10.0	6.0	8.2	6.7		4.2
Max. 8-Hr. Concentration	6.4	10.8	7.9	7.3	7.4	6.0	6.3	5.0	5.4	4.4	5.0	4.4	4.5	5.4	5.4	3.0	3.4	3.0		2.5
Days Above State 8-Hr. Std.	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
Days Above Nat. 8-Hr. Std.	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-33

Lake County Air Basin

County: Lake

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator	0.086	0.083	0.077	0.079	0.075	0.081	0.081	0.080	0.083	0.074	0.075	0.077	0.077	0.083	0.082	0.082	0.076	0.076	0.087	0.084
National 1-Hr. Design Value	0.080	0.080	0.080	0.080	0.070	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080
Nat. 8-Hr. Design Value	0.061	0.063	0.059	0.063	0.059	0.064	0.065	0.065	0.058	0.054	0.055	0.055	0.057	0.059	0.061	0.060	0.058	0.057	0.061	0.062
Maximum 1-Hr. Concentration	0.080	0.080	0.070	0.080	0.080	0.080	0.090	0.070	0.060	0.090	0.080	0.080	0.080	0.090	0.070	0.090	0.080	0.080	0.090	0.080
Max. 8-Hr. Concentration	0.060	0.073	0.061	0.077	0.070	0.080	0.080	0.061	0.053	0.063	0.066	0.057	0.072	0.075	0.063	0.070	0.065	0.076	0.072	0.073
Days Above State Standard	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 1-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration								28	29	30	31	22	30	21	30	26	18	35	43	22
Max. Annual Geometric Mean									12.0		11.0	11.1	9.9	10.1	9.6	9.1	7.7			9.6
Calc Days Above State 24-Hr Std								0	0	0	0	0	0	0	0	0	0	0	0	0
Calc Days Above Nat 24-Hr Std								0	0	0	0	0	0	0	0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator	3.4								1.9	2.9	2.9									
Max. 1-Hr. Concentration	3.0								3.0	6.0	7.0									
Max. 8-Hr. Concentration	2.1								2.2	2.6	3.1									
Days Above State 8-Hr. Std.	0								0	0	0									
Days Above Nat. 8-Hr. Std.	0								0	0	0									

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator	0.048																			
Max. 1-Hr. Concentration	0.030																			
Max. Annual Average																				

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-34

Lake Tahoe Air Basin

County: El Dorado

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator	0.090	0.088	0.086	0.080	0.081	0.082	0.085	0.089	0.091	0.091	0.093	0.089	0.079	0.082	0.084	0.084	0.083	0.082	0.081	0.089
National 1-Hr. Design Value	0.080	0.090	0.080	0.080	0.080	0.080	0.090	0.090	0.090	0.090	0.090	0.090	0.070	0.081	0.086	0.083	0.083	0.081	0.081	0.086
Nat. 8-Hr. Design Value	0.071	0.070	0.069	0.067	0.068	0.069	0.071	0.074	0.076	0.075	0.076	0.075	0.056	0.061	0.070	0.071	0.068	0.069	0.069	0.074
Maximum 1-Hr. Concentration	0.100	0.090	0.080	0.080	0.100	0.090	0.090	0.090	0.100	0.090	0.090	0.100	0.090	0.086	0.092	0.083	0.095	0.081	0.095	0.089
Max. 8-Hr. Concentration	0.082	0.080	0.071	0.072	0.086	0.080	0.082	0.085	0.085	0.080	0.081	0.082	0.071	0.079	0.089	0.073	0.071	0.077	0.079	0.077
Days Above State Standard	2	0	0	0	1	0	0	0	2	0	0	1	0	0	0	0	1	0	1	0
Days Above Nat. 1-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0	0	0	0	1	0	0	1	2	0	0	0	0	0	1	0	0	0	0	0

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration								95	73	84	78	85	92	78	71	72	55	59	41	50
Max. Annual Geometric Mean										26.0	24.6			23.5	19.3		19.6	19.6	17.4	17.6
Calc Days Above State 24-Hr Std								60	30	60	36	30	30	42	18	24	12	12	0	0
Calc Days Above Nat 24-Hr Std								0	0	0	0	0	0	0	0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator	15.0	15.6	16.1	16.1	16.4	15.5	14.9	13.2	12.6	11.9	11.1	10.2	8.7	8.3	7.8	7.0	5.6	5.0	2.3	2.1
Max. 1-Hr. Concentration	25.0	27.0	30.0	23.0	23.0	20.0	19.0	19.0	17.0	18.0	14.0	15.0	13.0	11.3	9.3	10.4	7.7	7.5	3.2	16.1
Max. 8-Hr. Concentration	15.4	18.3	17.4	14.8	16.3	12.5	13.0	12.5	11.3	10.1	9.2	9.9	7.5	7.1	6.3	5.1	3.8	4.3	2.4	2.8
Days Above Lk Tahoe 8-Hr. Std.	173	161	139	139	121	96	87	80	67	39	24	13	12	9	1	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	28	40	24	28	28	10	12	9	5	5	0	1	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator	0.074	0.073	0.085	0.079	0.079	0.074	0.076	0.073	0.074	0.078	0.076	0.078	0.062	0.061	0.062	0.062	0.061	0.060	0.057	0.058
Max. 1-Hr. Concentration	0.060	0.090	0.080	0.060	0.080	0.080	0.080	0.070	0.070	0.150	0.060	0.060	0.060	0.057	0.059	0.061	0.051	0.052	0.060	0.086
Max. Annual Average	0.014		0.010	0.012	0.011	0.010	0.012	0.012		0.012	0.012		0.011	0.012	0.011	0.011	0.011	0.010	0.011	0.011

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-35

A portion of El Dorado County lies within the Mountain Counties Air Basin.

Lake Tahoe Air Basin

County: Placer

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator																				
National 1-Hr. Design Value																				
Nat. 8-Hr. Design Value																				
Maximum 1-Hr. Concentration																				
Max. 8-Hr. Concentration																				
Days Above State Standard																				
Days Above Nat. 1-Hr. Std.																				
Days Above Nat. 8-Hr. Std.																				

No Monitoring Data Available

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration															24	50				
Max. Annual Geometric Mean																				
Calc Days Above State 24-Hr Std															0	0				
Calc Days Above Nat 24-Hr Std															0	0				

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator													3.9	3.9	3.9					
Max. 1-Hr. Concentration	11.0	15.0		13.0									9.0	11.6	9.5					
Max. 8-Hr. Concentration	7.9	8.5		7.3									4.3	4.7	2.9					
Days Above Lk Tahoe 8-Hr. Std.	2	7		2									0	0	0					
Days Above Nat. 8-Hr. Std.	0	0		0									0	0	0					

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-36

Portions of Placer County lie within the Mountain Counties and Sacramento Valley Air Basins.

Mojave Desert Air Basin

County: Kern

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator														0.122	0.134	0.125	0.121	0.125	0.121	0.121
National 1-Hr. Design Value													0.120	0.121	0.123	0.123	0.123	0.126	0.119	0.119
Nat. 8-Hr. Design Value													0.102	0.102	0.101	0.100	0.097	0.099	0.096	0.097
Maximum 1-Hr. Concentration													0.130	0.124	0.142	0.130	0.119	0.134	0.119	0.113
Max. 8-Hr. Concentration													0.112	0.107	0.109	0.109	0.096	0.117	0.100	0.095
Days Above State Standard													15	43	54	46	22	43	39	25
Days Above Nat. 1-Hr. Std.													2	0	3	2	0	2	0	0
Days Above Nat. 8-Hr. Std.													13	46	46	42	19	40	34	15

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration								148	54	462	534	65	64	116	235	92	130	165	45	90
Max. Annual Geometric Mean																13.4	14.9	12.9	16.8	17.6
Calc Days Above State 24-Hr Std								66	6	30	18	12	12	18	6	12	6	12	0	12
Calc Days Above Nat 24-Hr Std								0	0	6	18	0	0	0	6	0	0	6	0	0

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. 8-Hr. Concentration																				
Days Above State 8-Hr. Std.																				
Days Above Nat. 8-Hr. Std.																				

No Monitoring Data Available

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator														0.063	0.067	0.072	0.072	0.072	0.067	0.070
Max. 1-Hr. Concentration													0.070	0.060	0.120	0.075	0.075	0.082	0.083	0.071
Max. Annual Average															0.008		0.010	0.011		0.010

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-37

A portion of Kern County lies within the San Joaquin Valley Air Basin.

Mojave Desert Air Basin

County: Los Angeles

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator	0.226	0.220	0.205	0.176	0.185	0.187	0.191	0.187	0.181	0.179	0.140	0.154	0.159	0.161	0.194	0.138	0.134	0.140	0.131	0.137
National 1-Hr. Design Value	0.220	0.220	0.200	0.180	0.180	0.190	0.190	0.180	0.170	0.170	0.140	0.160	0.160	0.160	0.172	0.138	0.129	0.137	0.137	0.139
Nat. 8-Hr. Design Value	0.152	0.145	0.133	0.124	0.132	0.134	0.132	0.128	0.123	0.105	0.105	0.110	0.113	0.113	0.130	0.103	0.098	0.097	0.089	0.092
Maximum 1-Hr. Concentration	0.210	0.160	0.180	0.180	0.190	0.200	0.170	0.180	0.210	0.150	0.140	0.170	0.160	0.143	0.185	0.131	0.123	0.164	0.097	0.141
Max. 8-Hr. Concentration	0.168	0.127	0.146	0.141	0.147	0.150	0.140	0.131	0.147	0.106	0.111	0.137	0.127	0.112	0.154	0.104	0.101	0.118	0.083	0.117
Days Above State Standard	133	82	93	110	106	108	105	105	95	52	62	78	59	62	92	40	14	24	1	35
Days Above Nat. 1-Hr. Std.	82	25	42	49	58	47	32	44	27	7	8	25	14	10	34	1	0	8	0	2
Days Above Nat. 8-Hr. Std.	121	57	66	85	85	79	76	91	65	36	39	53	36	33	70	18	7	18	0	28

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration									110	342	780	68	70	97	61	67	54	80	85	
Max. Annual Geometric Mean												29.5	30.5			25.6			25.6	
Calc Days Above State 24-Hr Std									147	132	66	30	54	18	18	12	9	12	12	
Calc Days Above Nat 24-Hr Std									0	12	12	0	0	0	0	0	0	0	0	

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator	6.8	5.8	5.4	5.4	5.6	5.2	4.9	4.6	5.5	7.7	7.6	6.5	6.2	6.1	5.8	5.3	4.8	4.4	4.4	4.6
Max. 1-Hr. Concentration	9.0	10.0	13.0	10.0	12.0	9.0	12.0	11.0	13.0	11.0	10.0	9.0	8.0	9.1	7.5	6.8	5.9	5.4	7.2	6.0
Max. 8-Hr. Concentration	7.4	5.0	6.3	4.9	5.7	4.6	3.9	5.9	7.1	8.3	7.1	5.4	5.9	5.6	5.0	4.7	4.0	3.6	5.4	4.3
Days Above State 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator	0.093	0.092	0.095	0.093	0.091	0.087	0.084	0.090	0.091	0.096	0.095	0.097	0.098	0.097	0.098	0.090	0.086	0.070	0.070	0.070
Max. 1-Hr. Concentration	0.220	0.080	0.090	0.110	0.080	0.090	0.090	0.090	0.080	0.090	0.110	0.160	0.110	0.097	0.140	0.080	0.071	0.077	0.083	0.065
Max. Annual Average	0.013		0.015	0.018	0.015	0.014	0.016	0.016	0.019		0.014	0.017	0.020	0.018	0.019	0.015				0.016

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-38

A portion of Los Angeles County lies within the South Coast Air Basin.

Mojave Desert Air Basin

County: Riverside

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator					0.143	0.138	0.144	0.142	0.141	0.132	0.140	0.146	0.146							
National 1-Hr. Design Value					0.110	0.140	0.147	0.147	0.140	0.131	0.130	0.130	0.131							
Nat. 8-Hr. Design Value					0.092	0.096	0.101	0.103	0.102	0.096	0.099	0.101	0.101							
Maximum 1-Hr. Concentration					0.140	0.160	0.148	0.140	0.140	0.130	0.130	0.138	0.140							
Max. 8-Hr. Concentration					0.102	0.105	0.127	0.105	0.117	0.102	0.115	0.115	0.108							
Days Above State Standard					19	39	65	32	31	23	33	44	18							
Days Above Nat. 1-Hr. Std.					3	3	10	4	2	1	6	7	1							
Days Above Nat. 8-Hr. Std.					8	30	49	16	20	18	37	39	16							

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration											112	242								
Max. Annual Geometric Mean																				
Calc Days Above State 24-Hr Std											54	42								
Calc Days Above Nat 24-Hr Std											0	6								

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. 8-Hr. Concentration																				
Days Above State 8-Hr. Std.																				
Days Above Nat. 8-Hr. Std.																				

No Monitoring Data Available

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-39

Portions of Riverside County lie within the Salton Sea and South Coast Air Basins.

Mojave Desert Air Basin

County: San Bernardino

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator	0.315	0.207	0.199	0.193	0.200	0.235	0.231	0.234	0.204	0.215	0.223	0.220	0.193	0.191	0.193	0.186	0.171	0.176	0.162	0.154
National 1-Hr. Design Value	0.290	0.210	0.210	0.220	0.220	0.230	0.230	0.230	0.210	0.220	0.230	0.230	0.200	0.190	0.188	0.182	0.175	0.167	0.166	0.164
Nat. 8-Hr. Design Value	0.240	0.143	0.141	0.132	0.150	0.168	0.163	0.165	0.153	0.151	0.151	0.147	0.139	0.138	0.137	0.131	0.124	0.127	0.118	0.110
Maximum 1-Hr. Concentration	0.330	0.200	0.230	0.230	0.210	0.260	0.220	0.270	0.220	0.270	0.240	0.230	0.200	0.188	0.240	0.175	0.187	0.202	0.137	0.163
Max. 8-Hr. Concentration	0.295	0.145	0.182	0.158	0.167	0.225	0.161	0.167	0.161	0.198	0.173	0.165	0.147	0.155	0.170	0.146	0.133	0.144	0.122	0.132
Days Above State Standard	144	105	109	103	138	142	147	148	150	135	132	148	129	137	109	98	95	74	74	79
Days Above Nat. 1-Hr. Std.	100	25	48	38	74	94	71	104	91	76	67	75	66	77	47	38	22	24	4	10
Days Above Nat. 8-Hr. Std.	131	82	101	86	119	136	135	137	136	118	122	128	121	126	94	83	74	60	61	61

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration								150	191	381	389	105	79	140	85	138	85	70	109	80
Max. Annual Geometric Mean								33.6	38.4	38.6	36.6	35.6	29.2	24.7		24.2	25.2	14.2	27.9	19.3
Calc Days Above State 24-Hr Std								90	132	108	66	81	60	84	18	24	18	18	30	36
Calc Days Above Nat 24-Hr Std								0	6	12	6	0	0	0	0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator	7.3	7.6	2.8	3.1	3.4	3.4	3.5	4.2	4.0	4.1	4.2	4.3	3.8	3.8	2.9	7.4	2.3	2.4	2.1	1.7
Max. 1-Hr. Concentration	8.0	5.0	8.0	6.0	6.0	8.0	6.0	10.0	7.0	9.0	5.0	6.0	5.0	7.9	6.1	8.4	4.1	3.9	10.3	3.0
Max. 8-Hr. Concentration	7.3	3.5	2.9	2.9	3.5	3.4	4.0	5.8	3.9	3.9	3.9	3.4	3.5	3.2	2.7	7.5	3.1	2.2	3.2	1.6
Days Above State 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator	0.144	0.141	0.147	0.138	0.136	0.130	0.134	0.112	0.100	0.182	0.259	0.275	0.289	0.202	0.124	0.119	0.097	0.102	0.105	0.106
Max. 1-Hr. Concentration	0.300	0.200	0.150	0.160	0.140	0.150	0.130	0.100	0.120	0.190	0.350	0.240	0.360	0.138	0.118	0.087	0.107	0.196	0.113	0.105
Max. Annual Average	0.025	0.025	0.021	0.021	0.025	0.021		0.018	0.026	0.019		0.025		0.024	0.023	0.021	0.020	0.022	0.024	0.025

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator	0.02	0.02	0.03	0.04	0.04	0.03	0.03	0.06	0.06	0.06	0.04	0.03	0.02	0.02	0.02	0.01	0.02	0.01	0.01	0.01
Max. 24-Hr. Concentration	0.01	0.01	0.00	0.00	0.01	0.01	0.00	0.02	0.03	0.05	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Max. Annual Average	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table A-40

A portion of San Bernardino County lies within the South Coast Air Basin.

Mountain Counties Air Basin

County: Amador

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator												0.119	0.117	0.117	0.120	0.123	0.123	0.133	0.129	0.127
National 1-Hr. Design Value												0.110	0.110	0.119	0.119	0.123	0.127	0.128	0.128	0.126
Nat. 8-Hr. Design Value												0.090	0.089	0.091	0.091	0.093	0.090	0.095	0.096	0.099
Maximum 1-Hr. Concentration												0.120	0.110	0.123	0.146	0.127	0.135	0.143	0.121	0.121
Max. 8-Hr. Concentration												0.105	0.090	0.104	0.112	0.106	0.104	0.115	0.107	0.102
Days Above State Standard												15	11	15	21	21	9	30	22	13
Days Above Nat. 1-Hr. Std.												0	0	0	1	2	1	4	0	0
Days Above Nat. 8-Hr. Std.												11	5	15	18	14	3	28	13	14

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration																	30			
Max. Annual Geometric Mean																				
Calc Days Above State 24-Hr Std																	0			
Calc Days Above Nat 24-Hr Std																	0			

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator												2.5	2.2	2.0	2.0	1.7	1.5	1.4	1.5	1.6
Max. 1-Hr. Concentration												3.0	3.0	9.3	9.3	2.2	2.8	2.5	2.2	5.0
Max. 8-Hr. Concentration												2.4	3.0	1.8	2.6	1.5	1.4	1.4	1.5	1.3
Days Above State 8-Hr. Std.												0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.												0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-41

Mountain Counties Air Basin

County: Calaveras

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator														0.121	0.118	0.123	0.124	0.128	0.123	0.124
National 1-Hr. Design Value														0.114	0.117	0.129	0.130	0.130	0.124	0.124
Nat. 8-Hr. Design Value														0.099	0.096	0.097	0.093	0.096	0.096	0.100
Maximum 1-Hr. Concentration														0.121	0.146	0.138	0.140	0.134	0.126	0.134
Max. 8-Hr. Concentration														0.108	0.107	0.112	0.112	0.109	0.106	0.105
Days Above State Standard														35	23	24	6	27	21	16
Days Above Nat. 1-Hr. Std.														0	1	3	1	1	1	1
Days Above Nat. 8-Hr. Std.														34	19	18	4	28	18	17

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration														44	118	36	112	35	65	35
Max. Annual Geometric Mean															17.7	15.6		13.9	18.1	16.1
Calc Days Above State 24-Hr Std														0	12	0	6	0	12	0
Calc Days Above Nat 24-Hr Std														0	0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator														0.7	1.0	0.9	0.9	0.9	0.9	0.8
Max. 1-Hr. Concentration														1.5	2.1	1.7	2.1	1.8	1.8	1.2
Max. 8-Hr. Concentration														0.7	1.8	0.9	1.7	0.9	0.8	0.9
Days Above State 8-Hr. Std.														0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.														0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-42

Mountain Counties Air Basin

County: El Dorado

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator									0.138			0.127	0.122	0.127	0.131	0.137	0.140	0.147	0.144	0.144
National 1-Hr. Design Value									0.120			0.120	0.120	0.124	0.124	0.126	0.123	0.143	0.144	0.143
Nat. 8-Hr. Design Value									0.103			0.098	0.095	0.097	0.099	0.103	0.099	0.103	0.103	0.107
Maximum 1-Hr. Concentration									0.130			0.120	0.120	0.130	0.126	0.136	0.145	0.163	0.144	0.128
Max. 8-Hr. Concentration									0.110			0.112	0.108	0.104	0.113	0.113	0.106	0.127	0.118	0.113
Days Above State Standard									21			29	10	26	32	41	19	32	39	37
Days Above Nat. 1-Hr. Std.									2			0	0	2	1	3	1	6	4	2
Days Above Nat. 8-Hr. Std.									24			29	12	22	31	36	16	26	40	31

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration								56	59	89		103	62	34	53	58	62	41	49	38
Max. Annual Geometric Mean													15.7	16.4	15.3		15.7	13.0	15.8	
Calc Days Above State 24-Hr Std								6	18	12		6	6	0	6	6	6	0	0	0
Calc Days Above Nat 24-Hr Std								0	0	0		0	0	0	0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator									4.1	4.3		1.6	1.3	1.3	1.2	1.0	1.0	0.9	0.8	0.8
Max. 1-Hr. Concentration									6.0	5.0		3.0	2.0	1.7	1.6	1.3	1.6	1.7	1.4	2.7
Max. 8-Hr. Concentration									4.6	3.5		2.4	1.5	1.0	1.0	0.9	0.8	0.9	0.9	1.0
Days Above State 8-Hr. Std.									0	0		0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.									0	0		0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-43

A portion of El Dorado County lies within the Lake Tahoe Air Basin.

Mountain Counties Air Basin

County: Mariposa

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator							0.129	0.124	0.121	0.116	0.117	0.117	0.115	0.114	0.113	0.108	0.111	0.114	0.120	0.118
National 1-Hr. Design Value	0.090						0.116	0.119	0.119	0.113	0.110	0.110	0.110	0.110	0.111	0.109	0.110	0.111	0.112	0.112
Nat. 8-Hr. Design Value	0.076						0.093	0.092	0.090	0.090	0.088	0.089	0.096	0.095	0.095	0.096	0.095	0.095	0.095	0.094
Maximum 1-Hr. Concentration	0.090						0.145	0.119	0.110	0.120	0.110	0.111	0.120	0.113	0.114	0.111	0.120	0.114	0.155	0.121
Max. 8-Hr. Concentration	0.087						0.111	0.096	0.093	0.096	0.102	0.095	0.111	0.104	0.103	0.107	0.105	0.103	0.105	0.100
Days Above State Standard	0						27	26	2	20	19	10	17	10	20	28	7	13	16	10
Days Above Nat. 1-Hr. Std.	0						3	0	0	0	0	0	0	0	0	0	0	0	1	0
Days Above Nat. 8-Hr. Std.	1						22	20	4	20	31	9	22	12	24	30	7	14	24	14

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration								180	84	209	350	104	126	115	71	106	62	40	82	98
Max. Annual Geometric Mean											34.1			27.8						
Calc Days Above State 24-Hr Std								78	42	95	78	30	24	84	30	18	6	0	12	15
Calc Days Above Nat 24-Hr Std								6	0	9	12	0	0	0	0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator																				
Max. 1-Hr. Concentration	5.0											6.2								
Max. 8-Hr. Concentration	5.0											4.5								
Days Above State 8-Hr. Std.	0											0								
Days Above Nat. 8-Hr. Std.	0											0								

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration	0.060																			
Max. Annual Average																				

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-44

Mountain Counties Air Basin

County: Nevada

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator									0.118	0.125	0.118	0.110	0.076	0.111	0.111	0.118	0.113	0.114	0.114	0.117
National 1-Hr. Design Value									0.100	0.110	0.110	0.110	0.070	0.100	0.100	0.110	0.108	0.111	0.109	0.115
Nat. 8-Hr. Design Value									0.097	0.094	0.092	0.088	0.065	0.077	0.085	0.087	0.089	0.095	0.095	0.096
Maximum 1-Hr. Concentration									0.120	0.150	0.110	0.110	0.090	0.110	0.099	0.111	0.108	0.119	0.165	0.130
Max. 8-Hr. Concentration									0.107	0.115	0.096	0.087	0.078	0.107	0.092	0.104	0.101	0.099	0.103	0.113
Days Above State Standard									12	8	7	2	0	8	3	22	10	16	20	21
Days Above Nat. 1-Hr. Std.									0	2	0	0	0	0	0	0	0	0	1	1
Days Above Nat. 8-Hr. Std.									11	9	7	5	0	9	4	29	17	25	33	28

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration								38			44	43	34			49	136	92	84	57
Max. Annual Geometric Mean												21.1					25.0	21.7		
Calc Days Above State 24-Hr Std								0			0	0	0			0	66	24	36	6
Calc Days Above Nat 24-Hr Std								0			0	0	0			0	0	0	0	0

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator																				
Max. 1-Hr. Concentration											1.0	0.0	10.0	9.0						
Max. 8-Hr. Concentration											0.1	0.0	5.4	5.4						
Days Above State 8-Hr. Std.											0	0	0	0						
Days Above Nat. 8-Hr. Std.											0	0	0	0						

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-45

Mountain Counties Air Basin

County: Placer

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator								0.155	0.134	0.134	0.109	0.120	0.119	0.118	0.119	0.116	0.111	0.106	0.111	0.114
National 1-Hr. Design Value								0.140	0.140	0.140	0.100	0.110	0.110	0.120	0.119	0.117	0.109	0.103	0.105	0.115
Nat. 8-Hr. Design Value								0.108	0.102	0.089	0.063	0.092	0.092	0.092	0.092	0.091	0.086	0.086	0.086	0.089
Maximum 1-Hr. Concentration								0.160	0.120	0.090	0.060	0.130	0.120	0.122	0.130	0.108	0.103	0.132	0.159	0.119
Max. 8-Hr. Concentration								0.138	0.101	0.078	0.035	0.098	0.097	0.107	0.100	0.091	0.097	0.108	0.093	0.095
Days Above State Standard								39	24	0	0	17	9	15	16	4	2	11	9	10
Days Above Nat. 1-Hr. Std.								7	0	0	0	1	0	0	1	0	0	1	1	0
Days Above Nat. 8-Hr. Std.								35	22	0	0	12	4	12	11	5	2	8	9	5

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration															86	60	74			
Max. Annual Geometric Mean																				
Calc Days Above State 24-Hr Std															18	6	36			
Calc Days Above Nat 24-Hr Std															0	0	0			

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. 8-Hr. Concentration																				
Days Above State 8-Hr. Std.																				
Days Above Nat. 8-Hr. Std.																				

No Monitoring Data Available

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-46

Portions of Placer County lie within the Lake Tahoe and Sacramento Valley Air Basins.

Mountain Counties Air Basin

County: Plumas

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator						0.090	0.090						0.087	0.090	0.094	0.094	0.096	0.083	0.084	0.083
National 1-Hr. Design Value						0.080	0.080					0.050	0.080	0.090	0.090	0.091	0.091	0.081	0.083	0.083
Nat. 8-Hr. Design Value						0.073	0.071					0.037	0.053	0.062	0.077	0.078	0.065	0.060	0.060	0.070
Maximum 1-Hr. Concentration						0.090	0.080					0.050	0.090	0.090	0.105	0.091	0.046	0.087	0.086	0.081
Max. 8-Hr. Concentration						0.078	0.073					0.040	0.076	0.083	0.096	0.080	0.042	0.074	0.077	0.076
Days Above State Standard						0	0					0	0	0	1	0	0	0	0	0
Days Above Nat. 1-Hr. Std.						0	0					0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.						0	0					0	0	0	2	0	0	0	0	0

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration								153	144	138	162	120	130	98	52	55	66	74	125	75
Max. Annual Geometric Mean										28.7				28.7	21.7	18.8		22.5	22.5	
Calc Days Above State 24-Hr Std								72	66	72	90	84	90	39	6	6	30	18	30	24
Calc Days Above Nat 24-Hr Std								0	0	0	6	0	0	0	0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator						4.5	4.5													
Max. 1-Hr. Concentration						6.0	3.0													
Max. 8-Hr. Concentration						4.2	2.3													
Days Above State 8-Hr. Std.						0	0													
Days Above Nat. 8-Hr. Std.						0	0													

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator						0.046	0.046													
Max. 1-Hr. Concentration						0.050	0.040													
Max. Annual Average																				

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-47

Mountain Counties Air Basin

County: Sierra

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator																				
National 1-Hr. Design Value																				
Nat. 8-Hr. Design Value																				
Maximum 1-Hr. Concentration																				
Max. 8-Hr. Concentration																				
Days Above State Standard																				
Days Above Nat. 1-Hr. Std.																				
Days Above Nat. 8-Hr. Std.																				

No Monitoring Data Available

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration																114	138	60	68	39
Max. Annual Geometric Mean																			21.7	
Calc Days Above State 24-Hr Std																12	30	15	12	0
Calc Days Above Nat 24-Hr Std																0	0	0	0	0

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. 8-Hr. Concentration																				
Days Above State 8-Hr. Std.																				
Days Above Nat. 8-Hr. Std.																				

No Monitoring Data Available

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-48

Mountain Counties Air Basin

County: Tuolumne

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator								0.097	0.093	0.092	0.089	0.102	0.102	0.103	0.105	0.112	0.112	0.118	0.115	0.113
National 1-Hr. Design Value								0.091	0.091	0.091	0.090	0.090	0.100	0.101	0.103	0.116	0.117	0.117	0.116	0.114
Nat. 8-Hr. Design Value								0.081	0.078	0.077	0.075	0.083	0.085	0.085	0.087	0.090	0.088	0.092	0.092	0.096
Maximum 1-Hr. Concentration								0.096	0.090	0.090	0.090	0.100	0.120	0.107	0.135	0.121	0.117	0.122	0.130	0.109
Max. 8-Hr. Concentration								0.086	0.078	0.081	0.078	0.097	0.088	0.094	0.105	0.108	0.107	0.107	0.103	0.104
Days Above State Standard								2	0	0	0	2	5	8	9	25	8	21	17	13
Days Above Nat. 1-Hr. Std.								0	0	0	0	0	0	0	1	0	0	0	1	0
Days Above Nat. 8-Hr. Std.								3	0	0	0	1	6	9	14	21	7	26	25	26

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration																				
Max. Annual Geometric Mean																				
Calc Days Above State 24-Hr Std																				
Calc Days Above Nat 24-Hr Std																				

No Monitoring Data Available

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator	15.7											2.9	2.9	2.8	2.8	2.7	2.4	5.1	5.4	5.7
Max. 1-Hr. Concentration	30.0											4.0	5.0	4.4	3.9	4.5	6.6	6.7	4.1	3.4
Max. 8-Hr. Concentration	16.0											2.6	3.0	2.7	3.4	2.6	1.9	5.5	3.0	1.6
Days Above State 8-Hr. Std.	40											0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	41											0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-49

North Central Coast Air Basin

County: Monterey

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator	0.087	0.090	0.098	0.098	0.098	0.095	0.095	0.092	0.098	0.096	0.095	0.093	0.091	0.092	0.094	0.093	0.090	0.093	0.084	0.080
National 1-Hr. Design Value	0.100	0.100	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.100	0.090	0.090	0.090	0.090	0.091	0.087	0.089	0.084	0.080
Nat. 8-Hr. Design Value	0.065	0.062	0.061	0.065	0.074	0.071	0.071	0.068	0.072	0.075	0.073	0.071	0.069	0.070	0.069	0.067	0.066	0.066	0.062	0.061
Maximum 1-Hr. Concentration	0.090	0.110	0.100	0.090	0.110	0.080	0.090	0.090	0.130	0.090	0.100	0.090	0.110	0.093	0.093	0.094	0.091	0.091	0.086	0.095
Max. 8-Hr. Concentration	0.070	0.073	0.083	0.075	0.087	0.076	0.077	0.077	0.095	0.080	0.078	0.085	0.083	0.092	0.077	0.081	0.076	0.076	0.072	0.079
Days Above State Standard	0	1	1	0	1	0	0	0	3	0	1	0	2	0	0	0	0	0	0	1
Days Above Nat. 1-Hr. Std.	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0	0	0	0	1	0	0	0	1	0	0	1	0	1	0	0	0	0	0	0

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration								51	54	57	55	45	86	50	50	50	91	52	91	74
Max. Annual Geometric Mean								20.8		20.1			9.9	18.0	17.7	17.2	19.6	25.9	26.6	12.1
Calc Days Above State 24-Hr Std								6	12	12	6	0	18	0	0	0	42	6	12	24
Calc Days Above Nat 24-Hr Std								0	0	0	0	0	0	0	0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator	3.8	2.9	2.7	2.6	2.4	2.6	2.5	2.5	2.5	2.5	2.5	2.5	2.4	2.3	2.2	2.1	2.0	2.0	2.0	1.6
Max. 1-Hr. Concentration	4.0	6.0	3.0	5.0	6.0	4.0	5.0	6.0	5.0	5.0	4.0	4.0	4.0	4.6	3.2	5.5	4.4	3.8	3.8	3.5
Max. 8-Hr. Concentration	2.9	2.6	2.1	3.0	3.3	2.3	2.3	2.4	2.4	2.5	2.5	2.9	2.7	2.1	2.1	2.6	1.8	2.2	1.8	1.4
Days Above State 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator	0.112	0.100	0.070	0.066	0.072	0.083	0.083	0.077	0.072	0.071	0.068	0.062	0.064	0.064	0.062	0.059	0.059	0.059	0.054	0.046
Max. 1-Hr. Concentration	0.080	0.070	0.060	0.060	0.090	0.110	0.070	0.070	0.070	0.060	0.060	0.070	0.070	0.067	0.054	0.060	0.056	0.085	0.054	0.071
Max. Annual Average	0.015	0.012	0.011	0.014	0.015	0.014		0.014	0.014	0.012	0.011	0.012	0.012	0.012		0.011	0.010	0.010		0.007

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01										
Max. 24-Hr. Concentration	0.01	0.01	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00										
Max. Annual Average	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00										

Table A-50

North Central Coast Air Basin

County: San Benito

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator	0.129	0.119	0.108	0.104	0.113	0.109	0.146	0.136	0.131	0.115	0.114	0.115	0.111	0.107	0.106	0.111	0.112	0.113	0.103	0.104
National 1-Hr. Design Value	0.120	0.120	0.110	0.100	0.100	0.100	0.134	0.134	0.139	0.120	0.110	0.110	0.110	0.110	0.104	0.114	0.114	0.114	0.109	0.107
Nat. 8-Hr. Design Value	0.087	0.083	0.081	0.077	0.081	0.078	0.103	0.095	0.090	0.084	0.083	0.084	0.083	0.081	0.081	0.085	0.084	0.086	0.082	0.082
Maximum 1-Hr. Concentration	0.140	0.100	0.110	0.100	0.110	0.100	0.146	0.127	0.140	0.120	0.140	0.110	0.110	0.101	0.138	0.120	0.112	0.124	0.107	0.098
Max. 8-Hr. Concentration	0.113	0.077	0.088	0.083	0.091	0.083	0.113	0.096	0.100	0.095	0.108	0.090	0.087	0.084	0.102	0.101	0.091	0.097	0.085	0.084
Days Above State Standard	7	1	5	6	11	1	37	14	8	10	9	9	8	6	7	16	1	9	2	2
Days Above Nat. 1-Hr. Std.	2	0	0	0	0	0	5	1	1	0	1	0	0	0	1	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	4	0	3	0	4	0	26	6	1	5	3	3	2	0	3	9	1	6	1	0

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration								71	58	48	55	17	61	37	50	38	34	37	67	40
Max. Annual Geometric Mean									22.2				15.6		13.6	13.9	16.6	13.6		14.2
Calc Days Above State 24-Hr Std								12	6	0	6	0	12	0	0	0	0	0	6	0
Calc Days Above Nat 24-Hr Std								0	0	0	0	0	0	0	0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. 8-Hr. Concentration																				
Days Above State 8-Hr. Std.																				
Days Above Nat. 8-Hr. Std.																				

No Monitoring Data Available

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator	0.098	0.090	0.099	0.092																
Max. 1-Hr. Concentration	0.120	0.070	0.110	0.060																
Max. Annual Average	0.011	0.009	0.009																	

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-51

North Central Coast Air Basin

County: Santa Cruz

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator	0.099	0.098	0.091	0.089	0.103	0.096	0.097	0.094	0.092	0.084	0.084	0.082	0.110	0.102	0.102	0.098	0.095	0.096	0.088	0.089
National 1-Hr. Design Value	0.100	0.100	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.080	0.090	0.080	0.100	0.100	0.100	0.094	0.091	0.092	0.084	0.089
Nat. 8-Hr. Design Value	0.070	0.069	0.065	0.064	0.069	0.066	0.067	0.062	0.061	0.060	0.058	0.066	0.073	0.072	0.062	0.066	0.067	0.068	0.066	0.066
Maximum 1-Hr. Concentration	0.100	0.090	0.100	0.080	0.110	0.090	0.090	0.080	0.100	0.100	0.120	0.090	0.100	0.094	0.097	0.107	0.089	0.107	0.097	0.096
Max. 8-Hr. Concentration	0.080	0.073	0.071	0.072	0.088	0.077	0.073	0.070	0.087	0.080	0.082	0.075	0.086	0.078	0.070	0.088	0.071	0.077	0.072	0.078
Days Above State Standard	3	0	1	0	2	0	0	0	1	1	2	0	7	0	1	2	0	1	1	1
Days Above Nat. 1-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0	0	0	0	2	0	0	0	1	0	0	0	2	0	0	2	0	0	0	0

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration								65	51	49	49	36	102	106	152	115	113	76	103	50
Max. Annual Geometric Mean										22.3				27.6	29.5	27.7	31.7	25.9	27.6	23.5
Calc Days Above State 24-Hr Std								18	6	0	0	0	48	30	72	72	72	24	36	0
Calc Days Above Nat 24-Hr Std								0	0	0	0	0	0	0	0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator							1.5	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.0	0.8	0.8	0.8	0.8
Max. 1-Hr. Concentration							1.0	2.0	3.0	2.0	1.0	2.0	1.0	2.2	1.4	3.0	0.9	1.0	2.0	1.3
Max. 8-Hr. Concentration							1.0	1.3	1.3	1.0	1.0	1.2	1.0	1.3	0.9	1.0	0.7	0.9	0.8	0.8
Days Above State 8-Hr. Std.							0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.							0	0	0	0	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator	0.075						0.044	0.048	0.049	0.050	0.049	0.047	0.043	0.051	0.052	0.050	0.045	0.041	0.035	0.036
Max. 1-Hr. Concentration	0.070					0.040	0.050	0.050	0.040	0.050	0.040	0.040	0.050	0.045	0.053	0.042	0.031	0.039	0.032	0.035
Max. Annual Average							0.005		0.008			0.006		0.005		0.005		0.004	0.005	0.005

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator							0.02	0.02	0.02	0.02	0.01	0.01	0.03	0.04	0.05	0.04	0.03	0.01	0.01	0.01
Max. 24-Hr. Concentration						0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.01	0.00	0.00
Max. Annual Average						0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table A-52

North Coast Air Basin

County: Del Norte

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator	0.050							0.062	0.058	0.066	0.063	0.063	0.062	0.063	0.062					
National 1-Hr. Design Value	0.040						0.039	0.059	0.059	0.060	0.060	0.060	0.060	0.060	0.060					
Nat. 8-Hr. Design Value	0.040						0.035	0.043	0.042	0.053	0.051	0.051	0.050	0.051	0.049					
Maximum 1-Hr. Concentration	0.050						0.040	0.068	0.050	0.070	0.060	0.070	0.060	0.064	0.056					
Max. 8-Hr. Concentration	0.042						0.038	0.060	0.042	0.060	0.051	0.061	0.053	0.061	0.052					
Days Above State Standard	0						0	0	0	0	0	0	0	0	0					
Days Above Nat. 1-Hr. Std.	0						0	0	0	0	0	0	0	0	0					
Days Above Nat. 8-Hr. Std.	0						0	0	0	0	0	0	0	0	0					

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration								46							41	42	58	48	39	44
Max. Annual Geometric Mean																	18.8		15.2	15.6
Calc Days Above State 24-Hr Std								0							0	0	3	0	0	0
Calc Days Above Nat 24-Hr Std								0							0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. 8-Hr. Concentration																				
Days Above State 8-Hr. Std.																				
Days Above Nat. 8-Hr. Std.																				

No Monitoring Data Available

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration	0.020																			
Max. Annual Average																				

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration	0.00																			
Max. Annual Average	0.00																			

Table A-53

North Coast Air Basin

County: Humboldt

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator	0.070										0.049	0.049								
National 1-Hr. Design Value	0.060									0.030	0.040	0.040								
Nat. 8-Hr. Design Value	0.047									0.030	0.035	0.034								
Maximum 1-Hr. Concentration	0.070									0.040	0.050	0.040								
Max. 8-Hr. Concentration	0.051									0.031	0.042	0.040								
Days Above State Standard	0									0	0	0								
Days Above Nat. 1-Hr. Std.	0									0	0	0								
Days Above Nat. 8-Hr. Std.	0									0	0	0								

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration								98	92	83				77	68	87	56	43	57	51
Max. Annual Geometric Mean								31.0	28.2	24.4				21.1		15.9	18.8	13.2	16.4	18.3
Calc Days Above State 24-Hr Std								69	36	30				12	6	9	6	0	6	6
Calc Days Above Nat 24-Hr Std								0	0	0				0	0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator									4.6	4.6										
Max. 1-Hr. Concentration									10.0	9.0										
Max. 8-Hr. Concentration									4.5	3.5										
Days Above State 8-Hr. Std.									0	0										
Days Above Nat. 8-Hr. Std.									0	0										

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration	0.00																			
Max. Annual Average	0.00																			

Table A-54

North Coast Air Basin

County: Mendocino

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator	0.086	0.079	0.076	0.076	0.073	0.074	0.083						0.073	0.075	0.075	0.076	0.074	0.080	0.079	0.079
National 1-Hr. Design Value	0.080	0.080	0.080	0.070	0.070	0.070	0.080	0.080				0.050	0.060	0.074	0.080	0.073	0.069	0.069	0.073	0.073
Nat. 8-Hr. Design Value	0.059	0.055	0.053	0.051	0.050	0.052	0.056	0.066				0.038	0.047	0.050	0.056	0.052	0.050	0.052	0.058	0.058
Maximum 1-Hr. Concentration	0.080	0.080	0.070	0.070	0.070	0.070	0.090	0.090				0.060	0.080	0.087	0.084	0.058	0.071	0.090	0.079	0.071
Max. 8-Hr. Concentration	0.062	0.065	0.057	0.062	0.056	0.062	0.076	0.076				0.043	0.065	0.061	0.065	0.049	0.061	0.071	0.069	0.059
Days Above State Standard	0	0	0	0	0	0	0	0				0	0	0	0	0	0	0	0	0
Days Above Nat. 1-Hr. Std.	0	0	0	0	0	0	0	0				0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0	0	0	0	0	0	0	0				0	0	0	0	0	0	0	0	0

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration								101	82	60	74	51	54	62	54	56	66	50	66	49
Max. Annual Geometric Mean									26.4	20.9	22.5	20.1	20.5	20.2	23.4	21.6	20.7	19.6		19.8
Calc Days Above State 24-Hr Std								54	42	30	12	6	9	24	12	6	6	0	12	0
Calc Days Above Nat 24-Hr Std								0	0	0	0	0	0	0	0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator					5.2	5.2							2.4		3.2	3.4	3.3	3.1	3.6	3.4
Max. 1-Hr. Concentration				6.0	8.0	6.0		1.0				1.0	6.0		5.4	4.8	7.4	4.8	5.2	3.1
Max. 8-Hr. Concentration				4.1	5.5	3.1		1.0				0.6	2.4		3.2	2.7	3.2	3.5	3.7	2.4
Days Above State 8-Hr. Std.				0	0	0		0				0	0		0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.				0	0	0		0				0	0		0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator													0.054	0.053	0.053	0.053	0.049	0.050	0.054	0.053
Max. 1-Hr. Concentration								0.030				0.080	0.050	0.079	0.078	0.044	0.061	0.052	0.066	0.042
Max. Annual Average														0.008	0.009		0.010	0.010	0.010	0.011

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator													0.01	0.01						
Max. 24-Hr. Concentration								0.01				0.01	0.00	0.00						
Max. Annual Average								0.00				0.00	0.00	0.00						

Table A-55

North Coast Air Basin

County: Sonoma

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator												0.085	0.088	0.089	0.090	0.088	0.091	0.103	0.109	0.105
National 1-Hr. Design Value												0.080	0.090	0.090	0.090	0.090	0.090	0.110	0.110	0.110
Nat. 8-Hr. Design Value												0.063	0.065	0.066	0.069	0.069	0.072	0.077	0.082	0.076
Maximum 1-Hr. Concentration												0.090	0.090	0.100	0.100	0.080	0.100	0.130	0.100	0.090
Max. 8-Hr. Concentration												0.072	0.073	0.080	0.090	0.071	0.091	0.106	0.087	0.077
Days Above State Standard												0	0	1	1	0	2	7	4	0
Days Above Nat. 1-Hr. Std.												0	0	0	0	0	0	1	0	0
Days Above Nat. 8-Hr. Std.												0	0	0	1	0	1	5	2	0

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration								86	85	266	78	58	53	57	43	40	54	32	71	44
Max. Annual Geometric Mean								23.3		19.3			17.3	16.8		14.7	14.6	14.8	16.2	9.7
Calc Days Above State 24-Hr Std								21	30	21	30	6	12	12	0	0	3	0	12	0
Calc Days Above Nat 24-Hr Std								0	0	6	0	0	0	0	0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. 8-Hr. Concentration																				
Days Above State 8-Hr. Std.																				
Days Above Nat. 8-Hr. Std.																				

No Monitoring Data Available

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-56

A portion of Sonoma County lies within the San Francisco Bay Area Air Basin.

North Coast Air Basin

County: Trinity

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator	0.094																			
National 1-Hr. Design Value	0.080																			
Nat. 8-Hr. Design Value	0.072																			
Maximum 1-Hr. Concentration	0.090																			
Max. 8-Hr. Concentration	0.086																			
Days Above State Standard	0																			
Days Above Nat. 1-Hr. Std.	0																			
Days Above Nat. 8-Hr. Std.	1																			

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration								125							41	72	54	46	100	51
Max. Annual Geometric Mean															15.5	15.0	15.5	16.1	21.2	16.3
Calc Days Above State 24-Hr Std								42							0	8	6	0	30	3
Calc Days Above Nat 24-Hr Std								0							0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator							3.4													
Max. 1-Hr. Concentration							4.0													
Max. 8-Hr. Concentration							3.0													
Days Above State 8-Hr. Std.							0													
Days Above Nat. 8-Hr. Std.							0													

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-57

Northeast Plateau Air Basin

County: Lassen

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator																				
National 1-Hr. Design Value																				
Nat. 8-Hr. Design Value																				
Maximum 1-Hr. Concentration																				
Max. 8-Hr. Concentration																				
Days Above State Standard																				
Days Above Nat. 1-Hr. Std.																				
Days Above Nat. 8-Hr. Std.																				

No Monitoring Data Available

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration																42	84	52	100	80
Max. Annual Geometric Mean																				
Calc Days Above State 24-Hr Std																0	18	12	54	48
Calc Days Above Nat 24-Hr Std																0	0	0	0	0

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. 8-Hr. Concentration																				
Days Above State 8-Hr. Std.																				
Days Above Nat. 8-Hr. Std.																				

No Monitoring Data Available

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-58

Northeast Plateau Air Basin

County: Modoc

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator																				
National 1-Hr. Design Value																				
Nat. 8-Hr. Design Value																				
Maximum 1-Hr. Concentration																				
Max. 8-Hr. Concentration																				
Days Above State Standard																				
Days Above Nat. 1-Hr. Std.																				
Days Above Nat. 8-Hr. Std.																				

No Monitoring Data Available

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration														101	78	74	97	62	94	79
Max. Annual Geometric Mean																			22.2	17.6
Calc Days Above State 24-Hr Std														18	54	12	6	12	30	18
Calc Days Above Nat 24-Hr Std														0	0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. 8-Hr. Concentration																				
Days Above State 8-Hr. Std.																				
Days Above Nat. 8-Hr. Std.																				

No Monitoring Data Available

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-59

Northeast Plateau Air Basin

County: Siskiyou

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator		0.071	0.072	0.074	0.076	0.078	0.081	0.082	0.083	0.082	0.084	0.081	0.073	0.075	0.074	0.075	0.074	0.078	0.078	0.087
National 1-Hr. Design Value	0.060	0.070	0.070	0.070	0.070	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.070	0.070	0.070	0.070	0.070	0.075	0.075	0.091
Nat. 8-Hr. Design Value	0.051	0.056	0.056	0.059	0.061	0.064	0.069	0.069	0.069	0.067	0.059	0.057	0.051	0.058	0.057	0.059	0.058	0.061	0.062	0.064
Maximum 1-Hr. Concentration	0.060	0.070	0.070	0.080	0.080	0.080	0.090	0.080	0.080	0.080	0.050	0.080	0.070	0.080	0.070	0.070	0.082	0.078	0.070	0.143
Max. 8-Hr. Concentration	0.057	0.066	0.062	0.066	0.075	0.070	0.081	0.071	0.076	0.076	0.046	0.073	0.070	0.068	0.062	0.063	0.074	0.071	0.067	0.080
Days Above State Standard	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Days Above Nat. 1-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Days Above Nat. 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration								92	59	63	60	74	60	61	46	188	40	66	56	53
Max. Annual Geometric Mean								21.9	21.7			20.9		20.3	12.2	10.7			16.0	
Calc Days Above State 24-Hr Std								24	30	30	12	24	6	6	0	6	0	6	6	6
Calc Days Above Nat 24-Hr Std								0	0	0	0	0	0	0	0	6	0	0	0	0

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator																				
Max. 1-Hr. Concentration							12.0	4.0												
Max. 8-Hr. Concentration							10.4	1.8												
Days Above State 8-Hr. Std.							1	0												
Days Above Nat. 8-Hr. Std.							1	0												

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-60

Sacramento Valley Air Basin

County: Butte

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator	0.099	0.094	0.087	0.086	0.094	0.097	0.102	0.103	0.105	0.103	0.098	0.094	0.091	0.096	0.098	0.095	0.091	0.091	0.101	0.103
National 1-Hr. Design Value	0.100	0.100	0.090	0.080	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.090	0.090	0.095	0.097	0.097	0.091	0.096	0.103	0.103
Nat. 8-Hr. Design Value	0.072	0.070	0.068	0.069	0.074	0.078	0.082	0.081	0.082	0.080	0.077	0.076	0.075	0.078	0.078	0.077	0.072	0.072	0.077	0.086
Maximum 1-Hr. Concentration	0.100	0.090	0.080	0.090	0.100	0.110	0.110	0.100	0.100	0.130	0.100	0.090	0.100	0.099	0.105	0.108	0.087	0.106	0.135	0.105
Max. 8-Hr. Concentration	0.078	0.076	0.068	0.075	0.093	0.087	0.088	0.092	0.087	0.095	0.085	0.077	0.083	0.091	0.086	0.084	0.072	0.090	0.100	0.095
Days Above State Standard	1	0	0	0	4	2	5	8	4	2	1	0	1	3	1	2	0	2	7	5
Days Above Nat. 1-Hr. Std.	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0
Days Above Nat. 8-Hr. Std.	0	0	0	0	4	1	3	3	1	1	1	0	0	2	1	0	0	1	5	6

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration								115	91	97	123	83	78	93	64	66	108	68	95	81
Max. Annual Geometric Mean								36.7	31.9	32.2	34.0		24.7	30.0	25.0	22.0	21.5	19.4	26.1	24.7
Calc Days Above State 24-Hr Std								120	48	63	99	39	39	36	36	15	21	24	42	45
Calc Days Above Nat 24-Hr Std								0	0	0	0	0	0	0	0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator	8.4	9.3	8.6	8.6	8.6	10.1	10.2	10.7	10.1	10.4	9.8	9.8	8.9	6.2	5.8	5.9	5.5	5.3	4.4	4.5
Max. 1-Hr. Concentration	15.0	17.0	12.0	14.0	15.0	20.0	12.0	17.0	15.0	17.0	15.0	14.0	9.0	9.4	8.5	8.7	7.0	6.0	7.2	5.2
Max. 8-Hr. Concentration	8.4	12.4	6.5	10.9	9.8	10.4	8.6	12.3	10.0	10.8	9.2	6.8	5.8	5.7	4.8	6.1	5.1	4.5	5.4	4.0
Days Above State 8-Hr. Std.	0	3	0	1	2	3	0	2	1	1	2	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0	2	0	1	2	2	0	2	1	1	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator	0.081	0.070	0.072	0.080	0.084	0.083	0.089	0.090	0.089	0.081	0.081	0.082	0.082	0.078	0.077	0.074	0.072	0.068	0.074	0.077
Max. 1-Hr. Concentration	0.060	0.080	0.110	0.160	0.080	0.080	0.090	0.100	0.080	0.080	0.070	0.080	0.090	0.080	0.074	0.070	0.061	0.068	0.077	0.078
Max. Annual Average	0.013		0.011	0.014	0.014	0.015	0.017	0.016	0.016	0.015		0.016	0.016	0.015	0.014	0.013	0.013	0.013	0.015	0.012

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator	0.01	0.01																		
Max. 24-Hr. Concentration	0.00	0.00																		
Max. Annual Average	0.00	0.00																		

Table A-61

Sacramento Valley Air Basin

County: Colusa

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator	0.105	0.105	0.102	0.110	0.111	0.109	0.112					0.108	0.107	0.102	0.102	0.109	0.101	0.100	0.095	0.094
National 1-Hr. Design Value	0.100	0.110	0.100	0.110	0.100	0.110	0.110				0.090	0.100	0.100	0.100	0.101	0.102	0.098	0.099	0.094	0.094
Nat. 8-Hr. Design Value	0.080	0.078	0.078	0.080	0.082	0.085	0.085				0.073	0.078	0.079	0.082	0.082	0.082	0.077	0.077	0.076	0.075
Maximum 1-Hr. Concentration	0.100	0.110	0.090	0.110	0.110	0.110	0.120				0.100	0.110	0.100	0.107	0.106	0.111	0.093	0.099	0.095	0.092
Max. 8-Hr. Concentration	0.085	0.091	0.086	0.093	0.091	0.088	0.102				0.084	0.092	0.085	0.090	0.090	0.091	0.081	0.088	0.085	0.072
Days Above State Standard	6	3	0	12	7	12	28				1	8	3	4	6	6	0	2	1	0
Days Above Nat. 1-Hr. Std.	0	0	0	0	0	0	0				0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	3	1	1	5	4	5	21				0	3	2	2	2	4	0	1	1	0

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration								98	72	93	102	84	70	57	93	57	57	58	171	55
Max. Annual Geometric Mean									26.9	29.0		25.0	21.5	26.3			21.9	16.0		
Calc Days Above State 24-Hr Std								72	36	33	75	36	12	18	54	18	9	6	60	3
Calc Days Above Nat 24-Hr Std								0	0	0	0	0	0	0	0	0	0	0	6	0

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. 8-Hr. Concentration																				
Days Above State 8-Hr. Std.																				
Days Above Nat. 8-Hr. Std.																				

No Monitoring Data Available

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-62

Sacramento Valley Air Basin

County: Glenn

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator	0.101	0.102	0.102	0.105	0.107	0.101	0.108			0.102	0.104	0.101	0.103	0.101	0.098	0.098	0.097	0.094	0.098	0.096
National 1-Hr. Design Value	0.100	0.100	0.100	0.100	0.110	0.100	0.110			0.090	0.100	0.100	0.100	0.100	0.096	0.098	0.092	0.095	0.097	0.097
Nat. 8-Hr. Design Value	0.072	0.077	0.077	0.079	0.080	0.080	0.084			0.080	0.078	0.081	0.080	0.081	0.080	0.079	0.077	0.076	0.078	0.077
Maximum 1-Hr. Concentration	0.100	0.100	0.110	0.100	0.110	0.100	0.120			0.100	0.100	0.110	0.100	0.099	0.103	0.098	0.096	0.098	0.101	0.086
Max. 8-Hr. Concentration	0.083	0.080	0.095	0.088	0.090	0.083	0.097			0.086	0.082	0.088	0.083	0.086	0.087	0.081	0.080	0.088	0.093	0.078
Days Above State Standard	1	2	4	1	5	2	9			3	1	6	1	3	1	1	1	2	4	0
Days Above Nat. 1-Hr. Std.	0	0	0	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0	0	3	1	3	0	8			1	0	4	0	2	1	0	0	1	2	0

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration								93	73	63	81	111	75	80	88	75	72	53	88	65
Max. Annual Geometric Mean									24.4	25.9	27.9	24.2	20.8		25.4	19.6	19.2	16.9		18.8
Calc Days Above State 24-Hr Std								72	18	18	72	39	15	12	45	27	9	12	54	3
Calc Days Above Nat 24-Hr Std								0	0	0	0	0	0	0	0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. 8-Hr. Concentration																				
Days Above State 8-Hr. Std.																				
Days Above Nat. 8-Hr. Std.																				

No Monitoring Data Available

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-63

Sacramento Valley Air Basin

County: Placer

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator	0.149	0.144	0.146	0.144	0.153	0.153	0.149	0.153	0.148	0.150	0.138	0.145	0.138	0.137	0.135	0.139	0.134	0.138	0.129	0.134
National 1-Hr. Design Value	0.150	0.150	0.140	0.150	0.160	0.160	0.150	0.160	0.150	0.150	0.140	0.140	0.140	0.140	0.134	0.131	0.131	0.131	0.132	0.132
Nat. 8-Hr. Design Value	0.109	0.107	0.102	0.104	0.111	0.109	0.105	0.108	0.105	0.107	0.105	0.105	0.103	0.103	0.105	0.103	0.095	0.095	0.097	0.102
Maximum 1-Hr. Concentration	0.160	0.160	0.160	0.180	0.180	0.170	0.180	0.180	0.120	0.150	0.130	0.170	0.150	0.133	0.148	0.135	0.113	0.153	0.142	0.128
Max. 8-Hr. Concentration	0.117	0.130	0.118	0.112	0.127	0.123	0.121	0.120	0.097	0.127	0.115	0.122	0.120	0.117	0.119	0.110	0.096	0.119	0.113	0.107
Days Above State Standard	51	39	36	39	35	45	41	55	23	42	36	46	23	35	35	33	10	23	28	25
Days Above Nat. 1-Hr. Std.	12	4	6	5	8	4	7	13	0	11	4	8	4	5	3	3	0	7	3	1
Days Above Nat. 8-Hr. Std.	43	27	24	28	25	36	37	43	13	41	29	34	17	27	21	26	4	20	27	19

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration								70	67	58	68	48	52	65	84	98	66	70	89	58
Max. Annual Geometric Mean								29.2					23.4	23.3	22.8	19.2	20.8	19.4	22.4	22.1
Calc Days Above State 24-Hr Std								24	18	9	6	0	6	15	18	6	24	18	24	6
Calc Days Above Nat 24-Hr Std								0	0	0	0	0	0	0	0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator												2.3	2.6	2.9	2.6	2.5	2.2	2.3	2.3	2.4
Max. 1-Hr. Concentration											4.0	9.0	6.0	4.7	3.9	4.5	3.7	4.2	3.9	3.2
Max. 8-Hr. Concentration											3.3	2.3	2.8	3.0	2.1	2.8	2.1	2.4	2.2	2.4
Days Above State 8-Hr. Std.											0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.											0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator												0.090	0.088	0.090	0.096	0.098	0.095	0.091	0.092	0.091
Max. 1-Hr. Concentration											0.050	0.080	0.090	0.089	0.093	0.100	0.080	0.097	0.093	0.082
Max. Annual Average												0.015	0.016	0.018	0.017	0.016	0.015	0.016	0.012	0.016

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-64

Portions of Placer County lie within the Lake Tahoe and Mountain Counties Air Basins.

Sacramento Valley Air Basin

County: Sacramento

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator	0.181	0.174	0.163	0.162	0.173	0.173	0.168	0.171	0.166	0.162	0.153	0.158	0.159	0.148	0.149	0.154	0.141	0.161	0.155	0.153
National 1-Hr. Design Value	0.170	0.160	0.160	0.180	0.180	0.180	0.160	0.160	0.160	0.160	0.150	0.150	0.150	0.143	0.145	0.145	0.133	0.148	0.148	0.148
Nat. 8-Hr. Design Value	0.115	0.112	0.114	0.115	0.118	0.118	0.114	0.114	0.114	0.101	0.100	0.101	0.110	0.104	0.106	0.106	0.097	0.097	0.101	0.105
Maximum 1-Hr. Concentration	0.180	0.160	0.170	0.210	0.200	0.160	0.170	0.170	0.170	0.150	0.190	0.150	0.150	0.145	0.156	0.157	0.143	0.160	0.160	0.138
Max. 8-Hr. Concentration	0.142	0.133	0.125	0.138	0.161	0.125	0.127	0.130	0.133	0.108	0.140	0.122	0.118	0.121	0.128	0.126	0.107	0.137	0.129	0.108
Days Above State Standard	58	56	52	58	48	48	74	86	61	29	55	52	26	36	39	49	21	42	40	31
Days Above Nat. 1-Hr. Std.	18	17	12	23	18	22	17	30	8	8	12	9	6	6	10	7	3	13	5	4
Days Above Nat. 8-Hr. Std.	42	36	38	44	32	36	53	58	32	20	45	35	14	24	32	29	9	29	26	26

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration								99	139	153	134	89	110	99	90	86	108	104	141	86
Max. Annual Geometric Mean									35.5	36.0	37.7	29.1	25.3	26.1	26.3	22.2	20.9	22.3	23.7	22.9
Calc Days Above State 24-Hr Std								93	84	93	99	42	42	36	50	24	18	48	66	21
Calc Days Above Nat 24-Hr Std								0	0	0	0	0	0	0	0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator	12.9	13.4	13.2	13.0	13.2	14.6	14.4	13.4	14.0	14.7	14.8	12.9	10.7	9.6	9.3	8.5	7.7	7.3	7.0	7.0
Max. 1-Hr. Concentration	17.0	17.0	19.0	18.0	17.0	20.0	15.0	15.0	18.0	16.0	15.0	12.0	12.0	10.8	9.8	8.7	9.5	7.9	7.7	10.0
Max. 8-Hr. Concentration	13.5	15.1	14.1	12.4	13.3	13.9	10.0	11.6	15.9	14.0	12.3	8.6	9.4	8.4	7.4	7.2	7.2	7.1	6.6	6.3
Days Above State 8-Hr. Std.	7	9	6	6	12	12	5	11	22	14	8	0	2	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	7	8	4	5	12	11	3	8	22	12	6	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator	0.120	0.119	0.114	0.103	0.109	0.112	0.115	0.123	0.117	0.115	0.122	0.128	0.126	0.115	0.106	0.101	0.094	0.086	0.107	0.097
Max. 1-Hr. Concentration	0.110	0.120	0.110	0.100	0.130	0.120	0.100	0.180	0.130	0.160	0.240	0.190	0.120	0.111	0.099	0.145	0.092	0.101	0.110	0.085
Max. Annual Average	0.021	0.018	0.016	0.019	0.021	0.022	0.022	0.025	0.019	0.023	0.024	0.021	0.015	0.022	0.022	0.022	0.019	0.021	0.021	0.019

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator	0.02	0.02	0.02	0.02	0.03	0.03		0.05	0.05	0.04	0.04	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Max. 24-Hr. Concentration	0.01	0.01	0.01	0.01	0.01	0.01		0.02	0.02	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.01
Max. Annual Average	0.00	0.00	0.00	0.00	0.00	0.00		0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table A-65

Sacramento Valley Air Basin

County: Shasta

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator	0.116	0.111	0.117	0.110	0.115	0.115	0.121	0.122	0.119	0.129	0.119	0.117	0.111	0.111	0.105	0.114	0.118	0.127	0.126	0.125
National 1-Hr. Design Value	0.110	0.110	0.110	0.100	0.100	0.110	0.120	0.120	0.120	0.110	0.110	0.110	0.110	0.110	0.101	0.110	0.110	0.120	0.120	0.120
Nat. 8-Hr. Design Value	0.096	0.091	0.088	0.082	0.077	0.080	0.091	0.088	0.085	0.093	0.091	0.090	0.083	0.084	0.080	0.087	0.086	0.095	0.095	0.093
Maximum 1-Hr. Concentration	0.120	0.100	0.100	0.100	0.120	0.120	0.130	0.120	0.090	0.130	0.110	0.110	0.110	0.113	0.099	0.110	0.119	0.140	0.116	0.102
Max. 8-Hr. Concentration	0.100	0.091	0.093	0.091	0.105	0.097	0.108	0.105	0.083	0.110	0.095	0.091	0.088	0.105	0.084	0.100	0.107	0.126	0.098	0.087
Days Above State Standard	22	5	7	2	10	8	25	5	0	13	12	10	1	7	3	16	8	40	23	3
Days Above Nat. 1-Hr. Std.	0	0	0	0	0	0	2	0	0	1	0	0	0	0	0	0	0	3	0	0
Days Above Nat. 8-Hr. Std.	20	2	4	2	9	9	21	3	0	13	11	10	1	8	0	14	6	45	12	1

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration								60	91	80	83	86	91	64	55	51	63	61	81	49
Max. Annual Geometric Mean								23.5			23.5		17.1	21.6	22.1	21.6		20.5		21.5
Calc Days Above State 24-Hr Std								24	54	54	60	36	30	12	12	6	12	18	15	0
Calc Days Above Nat 24-Hr Std								0	0	0	0	0	0	0	0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator				1.1	1.1	3.1	3.1		2.4	2.3	2.3	2.6	2.0	2.0						
Max. 1-Hr. Concentration		9.0	10.0	3.0	2.0	5.0	4.0	4.0	4.0	4.0	3.0	3.0	4.0	4.5						
Max. 8-Hr. Concentration		3.4	6.0	1.1	1.1	2.8	2.5	1.8	2.5	2.3	2.0	1.9	2.1	1.7						
Days Above State 8-Hr. Std.		0	0	0	0	0	0	0	0	0	0	0	0	0						
Days Above Nat. 8-Hr. Std.		0	0	0	0	0	0	0	0	0	0	0	0	0						

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator						0.091	0.093	0.093	0.090	0.081	0.069	0.069								
Max. 1-Hr. Concentration					0.020	0.090	0.100	0.100	0.080	0.070	0.070	0.050								
Max. Annual Average							0.015				0.012									

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-66

Sacramento Valley Air Basin

County: Solano

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator	0.109	0.106	0.094	0.085	0.081	0.093	0.112	0.108	0.112	0.104					0.114	0.113	0.113	0.117	0.121	0.120
National 1-Hr. Design Value	0.110	0.110	0.090	0.080	0.080	0.090	0.110	0.110	0.120	0.100					0.102	0.106	0.106	0.123	0.123	0.123
Nat. 8-Hr. Design Value	0.078	0.069	0.055	0.051	0.047	0.055	0.066	0.079	0.082	0.075					0.079	0.079	0.076	0.082	0.085	0.085
Maximum 1-Hr. Concentration	0.110	0.100	0.080	0.100	0.070	0.090	0.120	0.100	0.120	0.110					0.115	0.126	0.105	0.137	0.140	0.100
Max. 8-Hr. Concentration	0.086	0.065	0.052	0.070	0.052	0.066	0.102	0.088	0.101	0.088					0.090	0.101	0.083	0.101	0.106	0.081
Days Above State Standard	2	1	0	1	0	0	12	2	4	1					6	8	3	10	8	2
Days Above Nat. 1-Hr. Std.	0	0	0	0	0	0	0	0	0	0					0	1	0	2	1	0
Days Above Nat. 8-Hr. Std.	1	0	0	0	0	0	8	2	1	1					3	2	0	7	8	0

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration								81	109	96	98	70	53	76	62	45	74	56	66	47
Max. Annual Geometric Mean												21.2		19.2	16.8	15.4	14.4	15.2	17.0	16.3
Calc Days Above State 24-Hr Std								24	30	36	72	24	6	18	12	0	6	6	18	0
Calc Days Above Nat 24-Hr Std								0	0	0	0	0	0	0	0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator																				
Max. 1-Hr. Concentration								4.0												
Max. 8-Hr. Concentration								1.8												
Days Above State 8-Hr. Std.								0												
Days Above Nat. 8-Hr. Std.								0												

NITROGEN DIOXIDE (ppm) 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000

Peak 1-Hr. Indicator
Max. 1-Hr. Concentration
Max. Annual Average

No Monitoring Data Available

SULFUR DIOXIDE (ppm) 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000

Peak 1-Hr. Indicator
Max. 24-Hr. Concentration
Max. Annual Average

No Monitoring Data Available

Table A-67

A portion of Solano County lies within the San Francisco Bay Area Air Basin.

Sacramento Valley Air Basin

County: Sutter

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator	0.125	0.105	0.123	0.127	0.125	0.125	0.120	0.128	0.123	0.121	0.106	0.111	0.125	0.121	0.120	0.115	0.114	0.120	0.116	0.115
National 1-Hr. Design Value	0.120	0.100	0.130	0.130	0.120	0.120	0.120	0.130	0.120	0.120	0.100	0.110	0.110	0.113	0.113	0.113	0.107	0.116	0.116	0.116
Nat. 8-Hr. Design Value	0.066	0.085	0.086	0.089	0.089	0.092	0.093	0.095	0.091	0.082	0.076	0.082	0.097	0.096	0.096	0.096	0.091	0.091	0.089	0.089
Maximum 1-Hr. Concentration	0.090	0.140	0.130	0.130	0.120	0.140	0.140	0.150	0.100	0.110	0.110	0.120	0.140	0.115	0.126	0.116	0.105	0.124	0.115	0.108
Max. 8-Hr. Concentration	0.077	0.103	0.108	0.101	0.097	0.103	0.107	0.103	0.087	0.083	0.095	0.108	0.108	0.100	0.103	0.102	0.092	0.102	0.097	0.092
Days Above State Standard	0	10	11	22	18	21	23	41	4	2	10	29	13	25	21	28	5	16	21	9
Days Above Nat. 1-Hr. Std.	0	2	2	1	0	2	1	2	0	0	0	0	2	0	1	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0	5	5	14	10	12	16	32	2	0	2	13	9	18	17	28	3	14	11	5

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration								109	103	96	108	79	78	154	128	82	98	60	150	70
Max. Annual Geometric Mean										35.6	34.6	31.4	28.8			25.5	25.3	19.8	30.3	
Calc Days Above State 24-Hr Std								84	48	75	96	54	36	33	54	21	18	24	48	21
Calc Days Above Nat 24-Hr Std								0	0	0	0	0	0	0	0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator											10.2	8.1	5.8	5.7	5.2	4.8	4.6	4.4	4.4	4.4
Max. 1-Hr. Concentration											12.0	9.0	10.0	8.8	7.5	7.7	6.1	7.3	7.2	6.1
Max. 8-Hr. Concentration											8.5	6.3	7.3	6.1	4.7	4.7	4.1	4.9	4.4	3.6
Days Above State 8-Hr. Std.											0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.											0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator											0.108	0.089	0.088	0.086	0.083	0.079	0.077	0.075	0.081	0.079
Max. 1-Hr. Concentration											0.100	0.090	0.090	0.075	0.074	0.068	0.073	0.074	0.085	0.072
Max. Annual Average												0.017	0.017	0.016	0.013	0.012	0.014	0.013	0.014	

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-68

Sacramento Valley Air Basin

County: Tehama

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator										0.119	0.115	0.113	0.107	0.104	0.108	0.102	0.099	0.109	0.115	0.115
National 1-Hr. Design Value										0.110	0.110	0.110	0.100	0.100	0.100	0.098	0.099	0.120	0.120	0.120
Nat. 8-Hr. Design Value										0.095	0.089	0.089	0.086	0.086	0.086	0.084	0.083	0.086	0.091	0.091
Maximum 1-Hr. Concentration										0.120	0.110	0.100	0.100	0.100	0.110	0.108	0.101	0.120	0.128	0.099
Max. 8-Hr. Concentration										0.100	0.085	0.091	0.093	0.087	0.103	0.084	0.093	0.112	0.108	0.088
Days Above State Standard										15	6	9	5	2	10	4	2	12	18	3
Days Above Nat. 1-Hr. Std.										0	0	0	0	0	0	0	0	0	1	0
Days Above Nat. 8-Hr. Std.										11	2	9	4	3	9	0	2	11	20	2

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration								99	68	67	85	75	67	74	63	56	58	119	98	49
Max. Annual Geometric Mean								36.6	28.4	26.4	26.7	25.9	22.0							
Calc Days Above State 24-Hr Std								114	42	24	63	30	18	36	30	6	12	48	48	0
Calc Days Above Nat 24-Hr Std								0	0	0	0	0	0	0	0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. 8-Hr. Concentration																				
Days Above State 8-Hr. Std.																				
Days Above Nat. 8-Hr. Std.																				

No Monitoring Data Available

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-69

Sacramento Valley Air Basin

County: Yolo

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator	0.134	0.132	0.129	0.126	0.124	0.120	0.125	0.124	0.119	0.115	0.113	0.112	0.110	0.106	0.107	0.109	0.111	0.120	0.115	0.115
National 1-Hr. Design Value	0.130	0.130	0.130	0.120	0.120	0.130	0.140	0.130	0.120	0.120	0.100	0.110	0.110	0.110	0.103	0.108	0.108	0.110	0.110	0.110
Nat. 8-Hr. Design Value	0.102	0.096	0.091	0.084	0.086	0.086	0.087	0.087	0.085	0.080	0.077	0.086	0.080	0.079	0.078	0.082	0.079	0.087	0.086	0.085
Maximum 1-Hr. Concentration	0.130	0.120	0.120	0.140	0.140	0.140	0.140	0.120	0.100	0.140	0.100	0.120	0.130	0.100	0.114	0.122	0.104	0.115	0.117	0.103
Max. 8-Hr. Concentration	0.115	0.105	0.093	0.097	0.097	0.100	0.127	0.097	0.083	0.105	0.091	0.096	0.097	0.082	0.091	0.104	0.086	0.102	0.094	0.089
Days Above State Standard	28	18	13	20	13	12	25	32	3	9	4	14	1	4	9	13	2	10	10	7
Days Above Nat. 1-Hr. Std.	4	0	0	2	1	2	3	0	0	1	0	0	1	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	19	12	7	11	6	4	13	12	0	6	1	7	1	0	4	4	1	5	6	2

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration								96	113	147	136	106	96	98	145	77	126	130	179	79
Max. Annual Geometric Mean								33.6		25.8		30.4	25.5		25.5	23.1	24.1	22.8	25.6	20.5
Calc Days Above State 24-Hr Std								114	48	48	114	96	60	36	66	42	12	60	60	30
Calc Days Above Nat 24-Hr Std								0	0	0	0	0	0	0	0	0	0	0	6	0

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator	4.7	5.1	4.6	4.2	3.6	4.3	4.6	4.6	4.6	4.9	5.2	3.8	3.8			1.4	1.7	1.5	1.4	1.2
Max. 1-Hr. Concentration	13.0	9.0	10.0	9.0	12.0	13.0	14.0	9.0	13.0	12.0	7.0	7.0	6.0	10.0	5.3	2.4	2.8	2.5	2.4	2.5
Max. 8-Hr. Concentration	4.3	6.4	3.8	4.1	4.9	6.0	8.4	4.9	5.4	5.0	3.5	3.9	3.4	6.6	3.1	1.8	1.8	1.1	1.4	1.3
Days Above State 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																0.064	0.061	0.064	0.069	0.069
Max. 1-Hr. Concentration																0.061	0.057	0.060	0.073	0.053
Max. Annual Average																	0.010	0.011	0.012	0.011

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-70

Sacramento Valley Air Basin

County: Yuba

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator																				
National 1-Hr. Design Value																				
Nat. 8-Hr. Design Value																				
Maximum 1-Hr. Concentration																				
Max. 8-Hr. Concentration																				
Days Above State Standard																				
Days Above Nat. 1-Hr. Std.																				
Days Above Nat. 8-Hr. Std.																				

No Monitoring Data Available

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration								96	113	80	102									
Max. Annual Geometric Mean										25.8										
Calc Days Above State 24-Hr Std								42	48	42	60									
Calc Days Above Nat 24-Hr Std								0	0	0	0									

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. 8-Hr. Concentration																				
Days Above State 8-Hr. Std.																				
Days Above Nat. 8-Hr. Std.																				

No Monitoring Data Available

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-71

Salton Sea Air Basin

County: Imperial

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator	0.121	0.117	0.114	0.103	0.122	0.134	0.092	0.110	0.110	0.117	0.108	0.150	0.156	0.154	0.163	0.155	0.156	0.145	0.147	0.149
National 1-Hr. Design Value	0.120	0.120	0.110	0.100	0.120	0.120	0.090	0.110	0.110	0.110	0.120	0.150	0.150	0.150	0.180	0.180	0.160	0.140	0.142	0.157
Nat. 8-Hr. Design Value	0.088	0.083	0.078	0.059	0.067	0.071	0.069	0.073	0.075	0.076	0.078	0.090	0.095	0.104	0.105	0.103	0.103	0.093	0.092	0.089
Maximum 1-Hr. Concentration	0.180	0.100	0.110	0.050	0.130	0.090	0.090	0.120	0.110	0.110	0.180	0.150	0.210	0.180	0.232	0.180	0.160	0.236	0.171	0.169
Max. 8-Hr. Concentration	0.110	0.081	0.080	0.031	0.102	0.080	0.081	0.098	0.088	0.082	0.135	0.117	0.128	0.116	0.116	0.117	0.120	0.104	0.110	0.113
Days Above State Standard	15	2	3	0	16	0	0	17	4	6	9	46	50	75	83	69	69	45	65	20
Days Above Nat. 1-Hr. Std.	1	0	0	0	1	0	0	0	0	0	3	8	16	8	22	10	10	5	24	5
Days Above Nat. 8-Hr. Std.	5	0	0	0	10	0	0	3	1	0	3	24	24	47	49	34	50	18	20	5

PM_{10} (ug/m3)*	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration								368	676	258	243	103	175	258	229	359	532	176	227	268
Max. Annual Geometric Mean								48.5	61.1	49.5	50.3	43.7	47.2		59.6	64.7	70.2	58.6	66.4	73.0
Calc Days Above State 24-Hr Std								198	210	195	192	138	138	192	210	246	294	234	264	312
Calc Days Above Nat 24-Hr Std								6	24	12	6	0	12	18	12	30	24	12	30	33

** PM_{10} statistics exclude data from the Calexico - East site because data from this site do not represent widespread exposure.*

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator														17.4	18.8	17.8	17.4	15.4	15.5	14.8
Max. 1-Hr. Concentration														30.6	32.0	27.0	24.0	23.5	22.9	19.9
Max. 8-Hr. Concentration														13.1	22.9	22.1	17.8	14.4	17.9	15.5
Days Above State 8-Hr. Std.														10	17	11	15	12	13	7
Days Above Nat. 8-Hr. Std.														9	15	9	10	8	11	6

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator														0.153	0.182	0.178	0.178	0.150	0.145	0.170
Max. 1-Hr. Concentration														0.227	0.217	0.164	0.128	0.257	0.286	0.192
Max. Annual Average															0.016	0.014			0.018	

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																0.04	0.04	0.04	0.04	0.03
Max. 24-Hr. Concentration														0.02	0.02	0.02	0.02	0.02	0.02	0.01
Max. Annual Average														0.01	0.01	0.00	0.00	0.00	0.00	0.00

Table A-72

Salton Sea Air Basin

County: Riverside

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator	0.216	0.209	0.194	0.202	0.204	0.197	0.185	0.182	0.180	0.181	0.175	0.168	0.159	0.153	0.153	0.154	0.152	0.153	0.143	0.138
National 1-Hr. Design Value	0.200	0.200	0.190	0.190	0.190	0.190	0.180	0.180	0.180	0.180	0.180	0.170	0.170	0.152	0.158	0.158	0.152	0.155	0.143	0.133
Nat. 8-Hr. Design Value	0.149	0.144	0.134	0.134	0.134	0.135	0.131	0.130	0.129	0.126	0.125	0.121	0.118	0.113	0.110	0.111	0.107	0.107	0.100	0.099
Maximum 1-Hr. Concentration	0.190	0.190	0.190	0.200	0.240	0.180	0.170	0.200	0.190	0.170	0.180	0.170	0.170	0.165	0.160	0.160	0.155	0.173	0.126	0.124
Max. 8-Hr. Concentration	0.151	0.142	0.150	0.165	0.160	0.142	0.141	0.137	0.160	0.130	0.148	0.128	0.126	0.130	0.132	0.125	0.117	0.136	0.107	0.104
Days Above State Standard	131	96	95	100	93	80	85	99	117	82	80	82	82	78	56	61	45	42	33	43
Days Above Nat. 1-Hr. Std.	62	38	50	40	28	31	40	35	38	27	24	24	21	13	11	12	4	8	1	0
Days Above Nat. 8-Hr. Std.	108	80	77	79	68	62	72	70	90	56	62	66	64	39	34	52	26	31	23	30

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration								115	712	520	340	175	125	97	199	215	182	158	119	201
Max. Annual Geometric Mean								42.7	35.8	64.9	59.8	39.2	40.6	45.3	47.2	48.3		44.5	26.1	50.3
Calc Days Above State 24-Hr Std								126	222	246	222	99	150	138	162	177	150	147	180	180
Calc Days Above Nat 24-Hr Std								0	24	24	18	6	0	0	6	12	12	3	0	9

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator	3.6	3.6	3.1	2.5	2.5	2.6	2.6	2.5	2.4	2.3	2.3	2.2	2.1	1.9	1.7	1.6	1.5	1.5	1.6	1.7
Max. 1-Hr. Concentration	6.0	5.0	7.0	4.0	5.0	5.0	5.0	4.0	6.0	5.0	5.0	5.0	6.0	3.9	3.3	3.2	2.7	3.1	2.9	2.7
Max. 8-Hr. Concentration	3.8	2.6	2.8	2.1	2.6	3.6	2.9	2.1	2.9	2.3	2.5	2.4	2.0	2.0	1.5	1.6	1.3	1.7	1.8	1.6
Days Above State 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator	0.109	0.140	0.149	0.150	0.124	0.085	0.083	0.084	0.089	0.092	0.091	0.088	0.088	0.088	0.088	0.084	0.082	0.077	0.075	0.073
Max. 1-Hr. Concentration	0.090	0.150	0.160	0.090	0.080	0.080	0.080	0.110	0.090	0.090	0.090	0.090	0.090	0.080	0.082	0.080	0.069	0.070	0.068	0.064
Max. Annual Average	0.019	0.025	0.027	0.014	0.020		0.019	0.022	0.024	0.021	0.021		0.019	0.021	0.021	0.020		0.016	0.018	0.016

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator	0.03	0.03	0.02	0.02																
Max. 24-Hr. Concentration	0.01	0.00	0.01	0.00																
Max. Annual Average	0.00	0.00	0.00	0.00																

Table A-73

Portions of Riverside County lie within the Mojave Desert and South Coast Air Basins.

San Diego Air Basin

County: San Diego

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator	0.228	0.203	0.188	0.197	0.188	0.179	0.179	0.179	0.186	0.180	0.172	0.164	0.150	0.147	0.148	0.142	0.132	0.134	0.134	0.132
National 1-Hr. Design Value	0.290	0.210	0.200	0.200	0.210	0.190	0.180	0.180	0.190	0.190	0.170	0.170	0.154	0.150	0.146	0.141	0.138	0.135	0.135	0.131
Nat. 8-Hr. Design Value	0.141	0.137	0.130	0.126	0.132	0.125	0.124	0.121	0.125	0.129	0.125	0.118	0.112	0.109	0.108	0.104	0.099	0.102	0.099	0.100
Maximum 1-Hr. Concentration	0.290	0.230	0.280	0.280	0.220	0.190	0.290	0.250	0.250	0.200	0.210	0.170	0.187	0.147	0.162	0.138	0.136	0.164	0.124	0.124
Max. 8-Hr. Concentration	0.206	0.162	0.176	0.207	0.168	0.143	0.196	0.156	0.193	0.145	0.145	0.133	0.154	0.121	0.122	0.117	0.112	0.141	0.100	0.106
Days Above State Standard	192	120	125	146	148	131	127	160	159	139	106	97	90	79	96	51	43	54	27	24
Days Above Nat. 1-Hr. Std.	78	47	61	51	50	42	40	45	56	39	27	19	14	9	12	2	1	9	0	0
Days Above Nat. 8-Hr. Std.	133	83	101	98	109	81	99	119	122	96	67	66	58	46	48	31	16	35	16	16

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration								81	90	115	81	67	159	129	121	93	125	89	121	139
Max. Annual Geometric Mean								36.8	41.3	33.4	38.0		40.0	45.2	39.8	28.4	41.9	38.6	47.5	31.6
Calc Days Above State 24-Hr Std								87	111	42	81	36	132	129	114	90	126	108	126	111
Calc Days Above Nat 24-Hr Std								0	0	0	0	0	6	0	0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator	12.1	9.5	9.3	9.4	10.6	10.2	10.4	10.2	10.3	10.2	10.0	8.6	7.8	7.7	7.3	7.3	6.3	6.3	5.6	5.3
Max. 1-Hr. Concentration	15.0	15.0	16.0	16.0	17.0	16.0	14.0	17.0	17.0	18.0	14.0	14.0	11.4	11.0	9.9	12.4	9.3	10.2	9.9	9.3
Max. 8-Hr. Concentration	11.3	10.3	12.1	8.5	13.0	10.4	9.4	10.3	10.5	9.1	7.9	7.9	7.5	7.5	6.3	7.1	5.4	4.8	6.0	5.9
Days Above State 8-Hr. Std.	1	1	1	0	5	2	1	5	6	1	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	1	1	1	0	3	1	0	2	5	0	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator	0.245	0.233	0.225	0.183	0.193	0.193	0.203	0.215	0.233	0.210	0.189	0.169	0.155	0.145	0.129	0.129	0.126	0.116	0.122	0.117
Max. 1-Hr. Concentration	0.270	0.200	0.200	0.230	0.210	0.220	0.260	0.280	0.230	0.180	0.160	0.190	0.130	0.157	0.140	0.124	0.142	0.132	0.172	0.117
Max. Annual Average	0.024	0.030	0.027	0.031	0.032	0.030	0.032	0.035	0.031	0.029	0.029	0.027	0.023	0.024	0.026	0.022	0.024	0.023	0.026	0.024

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator	0.10	0.12	0.10	0.09	0.07	0.06	0.06	0.06	0.06	0.07	0.06	0.08	0.09	0.09	0.08	0.08	0.08	0.08	0.08	0.07
Max. 24-Hr. Concentration	0.03	0.04	0.02	0.04	0.02	0.03	0.04	0.02	0.02	0.02	0.02	0.04	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01
Max. Annual Average	0.01	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table A-74

San Francisco Bay Area Air Basin

County: Alameda

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator	0.147	0.141	0.148	0.155	0.157	0.148	0.141	0.143	0.138	0.136	0.129	0.130	0.126	0.118	0.135	0.151	0.149	0.151	0.144	0.143
National 1-Hr. Design Value	0.170	0.170	0.160	0.160	0.160	0.150	0.140	0.140	0.140	0.130	0.130	0.120	0.120	0.120	0.138	0.138	0.138	0.138	0.139	0.139
Nat. 8-Hr. Design Value	0.090	0.084	0.086	0.090	0.096	0.093	0.089	0.087	0.089	0.087	0.084	0.082	0.081	0.082	0.087	0.093	0.090	0.089	0.086	0.087
Maximum 1-Hr. Concentration	0.160	0.150	0.190	0.150	0.150	0.140	0.160	0.150	0.140	0.130	0.140	0.130	0.130	0.129	0.155	0.138	0.114	0.146	0.146	0.152
Max. 8-Hr. Concentration	0.110	0.097	0.127	0.118	0.106	0.106	0.116	0.096	0.101	0.105	0.092	0.091	0.102	0.092	0.115	0.112	0.084	0.110	0.116	0.114
Days Above State Standard	26	12	29	36	27	22	21	27	14	9	19	16	8	7	21	23	6	22	15	9
Days Above Nat. 1-Hr. Std.	5	4	13	10	7	5	7	4	2	2	1	1	2	2	9	8	0	6	2	2
Days Above Nat. 8-Hr. Std.	7	4	12	15	12	5	11	8	5	4	2	3	4	3	12	10	0	10	6	2

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration								74	108	137	155	99	84	97	52	71	65	63	88	71
Max. Annual Geometric Mean								28.0	32.7	27.4	29.9	25.8	22.3	21.7	19.4	20.4	22.0	20.1	22.6	19.3
Calc Days Above State 24-Hr Std								57	78	57	84	30	18	24	6	6	12	12	18	12
Calc Days Above Nat 24-Hr Std								0	0	0	3	0	0	0	0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator	8.2	8.0	7.0	7.4	6.8	7.0	6.4	6.6	6.5	6.8	7.0	6.4	5.8	4.8	4.8	4.8	4.4	4.5	4.7	4.6
Max. 1-Hr. Concentration	12.0	10.0	11.0	12.0	10.0	12.0	10.0	10.0	10.0	8.0	9.0	7.0	7.0	8.7	5.5	6.9	7.9	6.3	6.4	5.4
Max. 8-Hr. Concentration	6.0	7.5	7.3	8.0	6.1	7.5	5.0	5.6	7.5	6.1	6.8	4.6	4.9	5.6	3.8	3.9	3.6	4.6	5.2	3.4
Days Above State 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator	0.146	0.136	0.130	0.132	0.138	0.140	0.138	0.139	0.138	0.138	0.133	0.120	0.112	0.092	0.091	0.090	0.089	0.087	0.094	0.091
Max. 1-Hr. Concentration	0.140	0.120	0.150	0.130	0.140	0.140	0.150	0.140	0.150	0.130	0.150	0.110	0.110	0.097	0.086	0.088	0.086	0.098	0.112	0.081
Max. Annual Average	0.027	0.023	0.023	0.025	0.026	0.025	0.025	0.026	0.025	0.023	0.024	0.021	0.022	0.022	0.021	0.022	0.020	0.020	0.022	0.020

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-75

San Francisco Bay Area Air Basin

County: Contra Costa

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator	0.133	0.134	0.136	0.143	0.140	0.128	0.129	0.128	0.129	0.115	0.113	0.112	0.111	0.110	0.121	0.125	0.123	0.126	0.128	0.128
National 1-Hr. Design Value	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.110	0.110	0.110	0.110	0.121	0.130	0.127	0.127	0.119	0.126	0.130
Nat. 8-Hr. Design Value	0.091	0.091	0.089	0.091	0.088	0.088	0.088	0.086	0.088	0.086	0.083	0.081	0.079	0.079	0.081	0.085	0.083	0.083	0.084	0.084
Maximum 1-Hr. Concentration	0.130	0.130	0.150	0.160	0.150	0.120	0.150	0.140	0.110	0.120	0.110	0.110	0.130	0.121	0.152	0.137	0.108	0.147	0.156	0.138
Max. 8-Hr. Concentration	0.097	0.108	0.101	0.116	0.103	0.092	0.105	0.095	0.097	0.105	0.088	0.092	0.096	0.097	0.114	0.100	0.081	0.109	0.122	0.094
Days Above State Standard	20	15	17	18	15	9	22	12	12	7	5	7	10	6	12	15	4	16	8	2
Days Above Nat. 1-Hr. Std.	2	1	7	3	2	0	3	1	0	0	0	0	2	0	4	1	0	2	3	1
Days Above Nat. 8-Hr. Std.	8	9	9	11	5	4	15	5	7	5	2	2	2	2	6	5	0	8	7	1

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration								95	115	147	123	73	81	87	73	76	78	67	101	62
Max. Annual Geometric Mean								29.4	25.8	24.2	27.1	22.6	21.8	22.0	19.4	18.8	19.9	17.5	21.0	17.4
Calc Days Above State 24-Hr Std								78	54	42	75	48	36	24	18	6	12	12	36	6
Calc Days Above Nat 24-Hr Std								0	0	0	0	0	0	0	0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator	7.0	6.3	6.2	6.5	6.1	6.2	5.8	6.3	6.1	6.1	6.1	5.7	5.2	4.5	4.1	3.6	3.2	3.3	3.4	3.3
Max. 1-Hr. Concentration	14.0	18.0	13.0	12.0	11.0	10.0	12.0	15.0	12.0	11.0	9.0	9.0	9.0	7.7	6.5	6.8	5.7	5.7	7.8	4.9
Max. 8-Hr. Concentration	5.1	6.4	5.6	5.9	5.3	5.9	5.5	6.6	5.6	5.8	5.4	5.4	5.0	4.2	2.9	2.9	3.2	3.8	3.3	2.7
Days Above State 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator	0.152	0.136	0.112	0.112	0.113	0.114	0.113	0.112	0.110	0.098	0.099	0.096	0.097	0.084	0.082	0.079	0.077	0.070	0.075	0.073
Max. 1-Hr. Concentration	0.120	0.110	0.130	0.150	0.110	0.130	0.130	0.130	0.110	0.100	0.120	0.110	0.100	0.081	0.087	0.085	0.076	0.066	0.087	0.074
Max. Annual Average	0.024	0.024	0.021	0.024	0.023	0.023	0.023	0.023	0.023	0.021	0.023	0.020	0.020	0.020	0.019	0.017	0.016	0.016	0.018	0.016

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator	0.11	0.11	0.07	0.07	0.07	0.08	0.08	0.08	0.07	0.06	0.05	0.05	0.04	0.05	0.04	0.04	0.05	0.04	0.05	0.06
Max. 24-Hr. Concentration	0.03	0.03	0.04	0.05	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.02	0.04	0.03
Max. Annual Average	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table A-76

San Francisco Bay Area Air Basin

County: Marin

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator	0.099	0.087	0.084	0.098	0.103	0.100	0.094	0.094	0.095	0.084	0.074	0.067	0.076	0.080	0.087	0.088	0.087	0.081	0.085	0.083
National 1-Hr. Design Value	0.100	0.090	0.090	0.110	0.110	0.100	0.090	0.090	0.090	0.080	0.080	0.066	0.080	0.080	0.082	0.088	0.088	0.081	0.092	0.085
Nat. 8-Hr. Design Value	0.059	0.053	0.051	0.058	0.062	0.063	0.059	0.058	0.057	0.053	0.054	0.051	0.047	0.050	0.055	0.057	0.055	0.051	0.051	0.050
Maximum 1-Hr. Concentration	0.090	0.100	0.110	0.110	0.100	0.080	0.100	0.100	0.080	0.080	0.080	0.070	0.080	0.089	0.088	0.105	0.106	0.074	0.102	0.071
Max. 8-Hr. Concentration	0.051	0.066	0.091	0.083	0.077	0.060	0.076	0.076	0.068	0.062	0.067	0.055	0.061	0.061	0.072	0.081	0.073	0.058	0.080	0.058
Days Above State Standard	0	1	2	5	1	0	1	1	0	0	0	0	0	0	0	2	1	0	2	0
Days Above Nat. 1-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration								91	73	115	115	63	69	72	74	50	72	52	76	40
Max. Annual Geometric Mean									26.7	22.6	26.4	22.0	21.3	21.5	19.2	19.8	20.2	18.7	19.5	
Calc Days Above State 24-Hr Std								12	39	24	57	30	6	24	6	0	12	6	12	0
Calc Days Above Nat 24-Hr Std								0	0	0	0	0	0	0	0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator	8.0	6.6	5.3	5.3	5.1	5.5	5.4	5.4	4.7	4.9	5.3	5.3	5.1	3.9	3.5	3.3	3.2	3.3	3.1	2.9
Max. 1-Hr. Concentration	12.0	14.0	11.0	14.0	10.0	10.0	12.0	10.0	9.0	8.0	10.0	8.0	9.0	6.4	6.1	7.1	6.0	5.9	5.6	4.2
Max. 8-Hr. Concentration	4.5	5.6	5.5	5.8	4.6	5.9	4.5	5.0	4.0	5.0	5.7	5.0	4.0	3.0	3.2	4.0	2.6	3.3	2.9	2.3
Days Above State 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator	0.128	0.133	0.105	0.101	0.099	0.100	0.099	0.104	0.102	0.096	0.091	0.084	0.085	0.077	0.075	0.068	0.065	0.064	0.068	0.065
Max. 1-Hr. Concentration	0.160	0.110	0.100	0.120	0.090	0.110	0.130	0.140	0.100	0.070	0.090	0.080	0.080	0.079	0.060	0.068	0.067	0.062	0.087	0.057
Max. Annual Average	0.025	0.024	0.024	0.025	0.024	0.024	0.023	0.022	0.022	0.021	0.021	0.021	0.021	0.020	0.018	0.018	0.016	0.017	0.018	0.016

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-77

San Francisco Bay Area Air Basin

County: Napa

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator	0.109	0.108	0.102	0.111	0.115	0.107	0.106	0.107	0.109	0.100	0.098	0.094	0.098	0.096	0.106	0.107	0.103	0.101	0.106	0.105
National 1-Hr. Design Value	0.110	0.110	0.100	0.110	0.110	0.110	0.110	0.100	0.100	0.090	0.100	0.090	0.100	0.091	0.105	0.095	0.095	0.091	0.103	0.103
Nat. 8-Hr. Design Value	0.066	0.069	0.066	0.072	0.073	0.069	0.068	0.070	0.071	0.066	0.064	0.063	0.066	0.066	0.073	0.071	0.067	0.063	0.067	0.069
Maximum 1-Hr. Concentration	0.110	0.090	0.110	0.110	0.110	0.090	0.110	0.100	0.100	0.090	0.110	0.090	0.120	0.092	0.130	0.090	0.084	0.125	0.115	0.077
Max. 8-Hr. Concentration	0.067	0.077	0.081	0.090	0.085	0.067	0.080	0.088	0.085	0.072	0.075	0.070	0.083	0.075	0.096	0.075	0.071	0.099	0.090	0.063
Days Above State Standard	3	0	4	8	3	0	6	1	2	0	3	0	2	0	4	0	0	3	4	0
Days Above Nat. 1-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0
Days Above Nat. 8-Hr. Std.	0	0	0	2	1	0	0	1	1	0	0	0	0	0	1	0	0	1	1	0

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration								109	97	117	100	74	70	86	69	57	78	60	66	45
Max. Annual Geometric Mean									27.9	27.9	27.9	23.9			17.8	18.1	16.6	15.5	16.3	14.6
Calc Days Above State 24-Hr Std								48	54	48	66	30	18	12	6	6	15	6	12	0
Calc Days Above Nat 24-Hr Std								0	0	0	0	0	0	0	0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator	8.6	8.3	6.7	7.0	6.9	6.9	6.3	6.4	6.4	6.3	6.2	6.0	5.7	5.2	5.0	4.5	4.1	4.1	4.0	3.7
Max. 1-Hr. Concentration	9.0	10.0	10.0	11.0	10.0	11.0	12.0	11.0	12.0	10.0	9.0	8.0	7.0	7.4	7.6	5.6	5.7	5.8	5.5	4.7
Max. 8-Hr. Concentration	6.5	6.7	6.5	7.1	6.6	6.8	5.6	6.0	5.4	7.1	5.8	5.3	4.4	4.6	3.5	3.8	3.9	3.9	4.2	2.8
Days Above State 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator	0.101	0.102	0.084	0.081	0.080	0.091	0.093	0.095	0.090	0.084	0.087	0.081	0.082	0.072	0.071	0.065	0.063	0.058	0.066	0.061
Max. 1-Hr. Concentration	0.080	0.090	0.080	0.090	0.090	0.090	0.090	0.080	0.090	0.070	0.090	0.060	0.080	0.065	0.059	0.077	0.075	0.061	0.086	0.054
Max. Annual Average	0.017	0.017	0.017	0.018	0.017	0.018	0.018	0.018	0.017	0.017	0.017	0.015	0.015	0.015	0.014	0.014	0.012	0.012	0.014	0.012

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-78

San Francisco Bay Area Air Basin

County: San Francisco

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator	0.066	0.067	0.071	0.078	0.080	0.076	0.073	0.074	0.075	0.071	0.063	0.058	0.060	0.062	0.065	0.064	0.067	0.059	0.059	0.057
National 1-Hr. Design Value	0.070	0.080	0.080	0.090	0.090	0.090	0.070	0.080	0.080	0.070	0.070	0.060	0.060	0.060	0.080	0.071	0.071	0.061	0.067	0.061
Nat. 8-Hr. Design Value	0.044	0.043	0.041	0.044	0.048	0.048	0.037	0.052	0.051	0.049	0.045	0.043	0.042	0.042	0.044	0.046	0.045	0.043	0.044	0.044
Maximum 1-Hr. Concentration	0.070	0.080	0.130	0.100	0.090	0.070	0.090	0.090	0.080	0.060	0.050	0.080	0.080	0.055	0.088	0.071	0.068	0.053	0.079	0.058
Max. 8-Hr. Concentration	0.040	0.051	0.073	0.067	0.065	0.056	0.070	0.070	0.063	0.051	0.047	0.052	0.052	0.045	0.067	0.050	0.059	0.046	0.057	0.043
Days Above State Standard	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 1-Hr. Std.	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration								117	101	165	109	81	69	93	50	71	81	52	78	63
Max. Annual Geometric Mean								23.9	31.6	27.8	29.7		25.1	24.7	22.1	21.4	22.4	20.2	22.6	21.6
Calc Days Above State 24-Hr Std								34	78	72	90	54	30	36	0	12	18	6	36	12
Calc Days Above Nat 24-Hr Std								0	0	6	0	0	0	0	0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator	8.8	7.4	7.8	8.4	8.8	9.1	8.6	8.3	7.7	7.8	7.2	6.7	6.4	5.8	5.6	4.7	4.5	4.2	4.3	3.8
Max. 1-Hr. Concentration	14.0	18.0	14.0	15.0	21.0	20.0	17.0	15.0	14.0	12.0	14.0	10.0	10.0	7.5	8.5	8.6	8.0	7.1	8.6	5.5
Max. 8-Hr. Concentration	7.3	14.5	8.0	10.8	15.0	12.6	10.0	12.8	9.0	6.9	8.4	7.4	6.9	5.3	5.3	5.6	5.7	4.0	4.6	3.2
Days Above State 8-Hr. Std.	0	2	0	1	4	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0	1	0	1	3	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator	0.145	0.148	0.125	0.131	0.141	0.143	0.112	0.116	0.122	0.120	0.112	0.108	0.099	0.092	0.089	0.088	0.083	0.076	0.083	0.084
Max. 1-Hr. Concentration	0.110	0.130	0.130	0.140	0.180	0.110	0.150	0.120	0.140	0.110	0.100	0.090	0.080	0.091	0.088	0.081	0.067	0.080	0.103	0.074
Max. Annual Average	0.027		0.026	0.029		0.024	0.024	0.026			0.024	0.022	0.024	0.022	0.021	0.021	0.020	0.020	0.021	0.020

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator	0.05	0.04	0.04	0.07	0.07	0.08	0.02	0.03	0.03	0.03	0.04	0.04	0.04	0.03	0.03	0.03	0.03	0.02	0.02	0.02
Max. 24-Hr. Concentration	0.01	0.01	0.02	0.04	0.03	0.03	0.01	0.01	0.02	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Max. Annual Average	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table A-79

San Francisco Bay Area Air Basin

County: San Mateo

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator	0.107	0.102	0.110	0.115	0.121	0.104	0.099	0.097	0.098	0.089	0.078	0.071	0.076	0.075	0.091	0.098	0.100	0.078	0.071	0.071
National 1-Hr. Design Value	0.130	0.120	0.110	0.110	0.110	0.110	0.110	0.100	0.100	0.090	0.080	0.070	0.080	0.084	0.103	0.103	0.103	0.090	0.079	0.080
Nat. 8-Hr. Design Value	0.064	0.059	0.058	0.063	0.068	0.061	0.060	0.060	0.065	0.058	0.053	0.049	0.050	0.049	0.058	0.061	0.062	0.053	0.049	0.047
Maximum 1-Hr. Concentration	0.130	0.100	0.170	0.110	0.130	0.100	0.120	0.100	0.100	0.080	0.080	0.090	0.100	0.084	0.140	0.097	0.090	0.066	0.082	0.083
Max. 8-Hr. Concentration	0.087	0.060	0.088	0.080	0.077	0.071	0.074	0.076	0.072	0.050	0.056	0.065	0.076	0.066	0.099	0.067	0.073	0.053	0.063	0.063
Days Above State Standard	2	1	8	9	5	1	2	2	1	0	0	0	1	0	5	1	0	0	0	0
Days Above Nat. 1-Hr. Std.	1	0	2	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	1	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration								94	90	137	90	80	76	76	48	48	70	49	85	53
Max. Annual Geometric Mean									29.1	23.0	26.6	24.9	22.9	21.9	18.6	19.1	22.3	20.7	22.3	19.1
Calc Days Above State 24-Hr Std								36	60	48	69	42	30	36	0	0	12	0	15	6
Calc Days Above Nat 24-Hr Std								0	0	0	0	0	0	0	0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator	8.1	7.4	7.0	7.1	7.3	7.0	6.9	6.0	5.8	5.9	5.9	5.8	5.8	5.4	4.9	4.4	3.9	4.2	4.3	4.3
Max. 1-Hr. Concentration	12.0	14.0	15.0	13.0	14.0	12.0	13.0	13.0	13.0	12.0	11.0	12.0	10.0	12.0	10.1	8.6	10.7	8.7	8.0	9.8
Max. 8-Hr. Concentration	6.7	6.0	9.6	5.6	6.4	6.4	5.5	5.4	5.3	5.9	6.5	4.8	5.8	5.4	3.9	3.6	4.2	4.1	3.8	4.4
Days Above State 8-Hr. Std.	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator	0.151	0.117	0.080	0.092	0.116	0.130	0.137	0.140	0.132	0.128	0.122	0.116	0.110	0.101	0.096	0.092	0.081	0.077	0.080	0.076
Max. 1-Hr. Concentration	0.090	0.080	0.100	0.090	0.130	0.130	0.120	0.130	0.120	0.120	0.120	0.100	0.090	0.106	0.077	0.090	0.084	0.063	0.104	0.065
Max. Annual Average	0.016	0.015	0.016	0.021	0.022	0.024		0.024	0.024	0.022	0.023	0.021	0.022	0.021	0.019	0.020	0.018	0.018	0.019	0.018

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-80

San Francisco Bay Area Air Basin

County: Santa Clara

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator	0.162	0.154	0.153	0.164	0.172	0.155	0.149	0.147	0.148	0.130	0.117	0.117	0.119	0.115	0.125	0.126	0.125	0.127	0.126	0.130
National 1-Hr. Design Value	0.190	0.180	0.150	0.160	0.160	0.150	0.140	0.140	0.140	0.120	0.120	0.120	0.120	0.118	0.130	0.129	0.129	0.118	0.125	0.125
Nat. 8-Hr. Design Value	0.103	0.094	0.095	0.100	0.103	0.097	0.092	0.092	0.097	0.088	0.082	0.078	0.080	0.080	0.086	0.088	0.085	0.085	0.080	0.081
Maximum 1-Hr. Concentration	0.180	0.150	0.200	0.170	0.160	0.140	0.170	0.140	0.130	0.130	0.130	0.130	0.130	0.130	0.145	0.129	0.114	0.147	0.125	0.113
Max. 8-Hr. Concentration	0.123	0.100	0.150	0.124	0.127	0.105	0.108	0.101	0.102	0.096	0.108	0.101	0.112	0.095	0.109	0.103	0.084	0.111	0.102	0.101
Days Above State Standard	43	26	48	50	40	32	41	34	17	10	12	15	14	8	22	24	3	22	12	4
Days Above Nat. 1-Hr. Std.	5	3	18	19	7	1	12	2	3	1	1	1	1	1	6	1	0	3	1	0
Days Above Nat. 8-Hr. Std.	19	7	26	28	14	10	25	19	7	4	5	3	4	2	14	8	0	8	4	1

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration								146	150	173	153	112	101	93	60	76	95	92	114	76
Max. Annual Geometric Mean								34.6	34.4	33.0	31.5	29.5	24.0	24.8	21.9	22.1	23.7	22.5	25.4	23.7
Calc Days Above State 24-Hr Std								66	84	66	84	78	48	42	24	12	18	18	30	42
Calc Days Above Nat 24-Hr Std								0	0	6	0	0	0	0	0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator	14.8	14.0	11.9	11.9	13.9	14.0	13.4	10.7	11.8	12.6	12.4	11.1	9.3	8.1	7.8	7.4	6.5	6.7	6.5	7.1
Max. 1-Hr. Concentration	16.0	16.0	17.0	20.0	21.0	16.0	13.0	15.0	19.0	18.0	15.0	11.0	14.0	12.0	8.9	8.8	9.9	8.6	9.0	8.9
Max. 8-Hr. Concentration	11.0	12.3	10.6	12.1	16.1	11.3	7.4	10.4	12.0	11.0	11.0	7.8	6.9	8.8	5.8	7.0	6.1	6.3	6.3	7.0
Days Above State 8-Hr. Std.	6	9	2	5	20	5	0	3	8	4	4	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	4	7	2	5	18	5	0	3	7	2	3	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator	0.233	0.225	0.183	0.186	0.196	0.189	0.188	0.167	0.162	0.156	0.160	0.155	0.141	0.116	0.119	0.114	0.111	0.101	0.108	0.105
Max. 1-Hr. Concentration	0.220	0.160	0.180	0.180	0.190	0.160	0.170	0.160	0.150	0.150	0.140	0.100	0.120	0.107	0.116	0.108	0.118	0.083	0.128	0.114
Max. Annual Average	0.033	0.032	0.029	0.032	0.035	0.033	0.031	0.032	0.032	0.030	0.031	0.027	0.027	0.028	0.027	0.025	0.025	0.025	0.026	0.025

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-81

San Francisco Bay Area Air Basin

County: Solano

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator	0.117	0.113	0.109	0.118	0.119	0.112	0.113	0.111	0.117	0.107	0.103	0.100	0.103	0.102	0.111	0.114	0.113	0.115	0.121	0.124
National 1-Hr. Design Value	0.120	0.120	0.120	0.130	0.130	0.120	0.110	0.110	0.110	0.110	0.100	0.100	0.100	0.100	0.109	0.113	0.113	0.110	0.117	0.117
Nat. 8-Hr. Design Value	0.076	0.074	0.072	0.074	0.075	0.073	0.077	0.077	0.078	0.074	0.074	0.074	0.074	0.073	0.077	0.079	0.078	0.077	0.081	0.080
Maximum 1-Hr. Concentration	0.120	0.110	0.130	0.140	0.120	0.090	0.120	0.130	0.120	0.110	0.110	0.100	0.130	0.107	0.133	0.113	0.103	0.121	0.129	0.096
Max. 8-Hr. Concentration	0.077	0.088	0.097	0.095	0.087	0.076	0.092	0.093	0.086	0.087	0.087	0.086	0.096	0.082	0.099	0.095	0.083	0.097	0.101	0.076
Days Above State Standard	4	4	7	13	7	0	14	6	4	2	5	4	4	3	13	8	1	9	9	1
Days Above Nat. 1-Hr. Std.	0	0	2	4	0	0	0	1	0	0	0	0	1	0	1	0	0	0	1	0
Days Above Nat. 8-Hr. Std.	0	1	1	5	1	0	5	2	1	1	1	2	2	0	5	3	0	3	4	0

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration														63	59	49	85	71	84	53
Max. Annual Geometric Mean															16.4	15.1	15.6	14.9		13.0
Calc Days Above State 24-Hr Std														6	6	0	18	6	18	6
Calc Days Above Nat 24-Hr Std														0	0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator	10.8	11.3	10.9	11.4	10.8	10.9	10.3	10.3	10.1	10.4	10.3	9.3	8.4	7.5	7.1	6.2	5.6	5.4	5.7	5.5
Max. 1-Hr. Concentration	14.0	13.0	13.0	15.0	12.0	13.0	13.0	14.0	13.0	12.0	13.0	11.0	12.0	8.7	7.0	6.4	6.5	7.2	6.6	6.5
Max. 8-Hr. Concentration	8.6	10.9	9.9	9.8	8.6	10.8	9.4	10.6	11.5	9.0	9.6	6.6	7.9	6.5	5.3	4.9	4.9	5.3	5.5	5.1
Days Above State 8-Hr. Std.	0	5	1	4	0	4	1	1	2	0	1	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0	5	1	2	0	4	0	1	2	0	1	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator	0.101	0.102	0.096	0.095	0.093	0.097	0.090	0.090	0.094	0.094	0.096	0.090	0.087	0.075	0.072	0.069	0.065	0.064	0.068	0.067
Max. 1-Hr. Concentration	0.130	0.100	0.100	0.110	0.090	0.100	0.080	0.090	0.130	0.080	0.090	0.070	0.070	0.066	0.070	0.071	0.068	0.064	0.083	0.064
Max. Annual Average	0.018	0.020	0.018	0.019	0.018		0.018	0.019	0.018	0.018	0.018	0.017	0.016	0.016	0.015	0.015	0.013	0.014	0.014	0.013

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator	0.07	0.06	0.04	0.03	0.03	0.03	0.03	0.04	0.04	0.04	0.04	0.04	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.02
Max. 24-Hr. Concentration	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Max. Annual Average	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table A-82

A portion of Solano County lies within the Sacramento Valley Air Basin.

San Francisco Bay Area Air Basin

County: Sonoma

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator	0.112	0.106	0.090	0.100	0.106	0.105	0.102	0.101	0.104	0.102	0.103	0.095	0.091	0.081	0.086	0.086	0.084	0.079	0.085	0.082
National 1-Hr. Design Value	0.110	0.110	0.090	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.090	0.090	0.080	0.084	0.084	0.085	0.077	0.090	0.086
Nat. 8-Hr. Design Value	0.077	0.072	0.062	0.066	0.068	0.068	0.069	0.071	0.076	0.072	0.072	0.067	0.063	0.058	0.057	0.058	0.054	0.052	0.054	0.055
Maximum 1-Hr. Concentration	0.090	0.090	0.120	0.110	0.110	0.100	0.110	0.110	0.100	0.090	0.100	0.090	0.080	0.086	0.097	0.089	0.093	0.068	0.095	0.078
Max. 8-Hr. Concentration	0.063	0.071	0.088	0.087	0.091	0.078	0.097	0.096	0.083	0.073	0.078	0.080	0.062	0.072	0.077	0.077	0.080	0.054	0.076	0.056
Days Above State Standard	0	0	2	3	3	1	2	2	3	0	3	0	0	0	1	0	0	0	1	0
Days Above Nat. 1-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0	0	1	2	2	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration														61	46	38	85	53	54	46
Max. Annual Geometric Mean															13.9	15.3	16.5			15.8
Calc Days Above State 24-Hr Std														6	0	0	12	6	6	0
Calc Days Above Nat 24-Hr Std														0	0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator	8.2	5.3	5.2	5.1	5.3	5.6	5.5	5.2	5.5	5.5	5.2	4.4	4.3	3.8	3.5	3.1	3.0	3.1	3.3	3.2
Max. 1-Hr. Concentration	11.0	9.0	8.0	10.0	9.0	9.0	7.0	9.0	9.0	7.0	6.0	6.0	6.0	5.1	4.9	5.6	5.4	5.2	5.7	4.5
Max. 8-Hr. Concentration	5.8	5.8	4.6	4.9	5.9	5.3	4.3	5.1	6.1	5.1	4.0	4.0	3.8	3.4	2.8	3.0	3.3	3.2	3.4	3.0
Days Above State 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator	0.115	0.083	0.097	0.106	0.120	0.119	0.110	0.103	0.097	0.094	0.083	0.083	0.082	0.080	0.076	0.067	0.064	0.057	0.062	0.060
Max. 1-Hr. Concentration	0.090	0.090	0.110	0.140	0.160	0.110	0.090	0.120	0.090	0.090	0.090	0.100	0.090	0.084	0.066	0.062	0.061	0.057	0.074	0.054
Max. Annual Average		0.016	0.016	0.017	0.017	0.016	0.016	0.016		0.014	0.015	0.015		0.015	0.015	0.014	0.013	0.015	0.014	0.013

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-83

A portion of Sonoma County lies within the North Coast Air Basin.

San Joaquin Valley Air Basin

County: Fresno

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator	0.183	0.186	0.184	0.164	0.162	0.172	0.172	0.168	0.170	0.158	0.167	0.162	0.162	0.155	0.152	0.154	0.153	0.162	0.159	0.158
National 1-Hr. Design Value	0.180	0.170	0.170	0.160	0.160	0.170	0.170	0.170	0.160	0.150	0.160	0.160	0.160	0.150	0.144	0.146	0.146	0.161	0.161	0.161
Nat. 8-Hr. Design Value	0.123	0.123	0.116	0.114	0.110	0.117	0.118	0.121	0.115	0.110	0.110	0.108	0.111	0.107	0.108	0.107	0.111	0.115	0.113	0.111
Maximum 1-Hr. Concentration	0.180	0.180	0.170	0.170	0.160	0.180	0.200	0.190	0.150	0.150	0.180	0.160	0.160	0.144	0.173	0.154	0.147	0.169	0.155	0.165
Max. 8-Hr. Concentration	0.126	0.127	0.122	0.125	0.131	0.135	0.150	0.125	0.121	0.117	0.130	0.121	0.121	0.111	0.126	0.123	0.127	0.134	0.123	0.131
Days Above State Standard	95	79	82	109	112	118	127	130	109	79	94	86	81	65	81	96	95	79	95	92
Days Above Nat. 1-Hr. Std.	36	26	27	42	34	39	43	47	24	14	30	25	19	14	22	31	13	30	18	23
Days Above Nat. 8-Hr. Std.	77	66	72	100	85	94	112	113	92	55	81	69	59	55	63	78	75	69	83	79

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration								162	250	297	152	125	190	127	126	144	124	141	162	138
Max. Annual Geometric Mean								39.8	46.9	54.7	47.6		44.3	33.7	40.0	33.9	41.5	31.2	38.0	33.5
Calc Days Above State 24-Hr Std								204	168	192	174	162	150	150	138	84	108	84	114	114
Calc Days Above Nat 24-Hr Std								6	36	24	0	0	6	0	0	0	0	0	6	0

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator	17.2	15.7	13.9	13.6	13.4	13.9	13.5	13.8	13.7	13.9	10.2	10.2	10.0	10.0	10.9	9.9	9.0	8.3	8.5	8.3
Max. 1-Hr. Concentration	18.0	18.0	17.0	24.0	18.0	21.0	15.0	19.0	23.0	15.0	15.0	13.0	13.0	15.0	12.0	10.1	9.9	10.3	11.9	9.0
Max. 8-Hr. Concentration	13.6	14.8	14.3	15.7	10.7	16.3	10.9	16.5	13.1	10.3	10.4	7.6	9.3	8.9	9.1	6.8	7.5	8.0	7.7	6.2
Days Above State 8-Hr. Std.	10	7	9	7	6	12	3	3	17	3	1	0	2	0	1	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	8	6	6	6	6	8	3	4	13	3	1	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator	0.185	0.173	0.134	0.115	0.144	0.148	0.145	0.144	0.151	0.156	0.129	0.123	0.121	0.124	0.124	0.115	0.107	0.100	0.107	0.106
Max. 1-Hr. Concentration	0.210	0.150	0.150	0.190	0.150	0.190	0.150	0.210	0.190	0.160	0.120	0.110	0.120	0.119	0.111	0.109	0.103	0.112	0.108	0.094
Max. Annual Average	0.023	0.021	0.025	0.027	0.031	0.019	0.030	0.032	0.032	0.026	0.025	0.023	0.023	0.023	0.022	0.021	0.021	0.020	0.024	0.021

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator	0.05	0.04	0.04	0.04	0.04	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.02			
Max. 24-Hr. Concentration	0.02	0.02	0.02	0.02	0.01	0.02	0.01	0.02	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.00			
Max. Annual Average	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			

Table A-84

San Joaquin Valley Air Basin

County: Kern

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator	0.180	0.175	0.171	0.164	0.162	0.162	0.166	0.169	0.167	0.164	0.166	0.160	0.154	0.154	0.163	0.164	0.167	0.161	0.152	0.150
National 1-Hr. Design Value	0.170	0.170	0.170	0.160	0.160	0.160	0.160	0.170	0.170	0.160	0.160	0.160	0.160	0.160	0.165	0.165	0.164	0.158	0.154	0.154
Nat. 8-Hr. Design Value	0.127	0.119	0.114	0.109	0.111	0.114	0.118	0.118	0.120	0.119	0.118	0.115	0.112	0.111	0.119	0.119	0.115	0.115	0.111	0.111
Maximum 1-Hr. Concentration	0.180	0.180	0.160	0.170	0.160	0.160	0.170	0.170	0.180	0.170	0.160	0.150	0.160	0.175	0.168	0.165	0.146	0.165	0.140	0.151
Max. 8-Hr. Concentration	0.148	0.133	0.113	0.121	0.121	0.126	0.131	0.127	0.136	0.123	0.120	0.115	0.125	0.129	0.134	0.137	0.118	0.136	0.112	0.117
Days Above State Standard	107	76	66	81	112	99	124	134	132	120	119	106	110	114	115	114	66	81	105	95
Days Above Nat. 1-Hr. Std.	50	21	20	26	27	33	46	56	42	37	37	10	37	37	38	44	8	29	12	16
Days Above Nat. 8-Hr. Std.	74	64	61	71	90	94	112	124	112	96	107	100	98	101	104	109	55	75	88	82

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration								244	237	287	189	183	130	190	195	153	137	159	183	145
Max. Annual Geometric Mean								50.5		68.5	58.1	56.6	45.3	35.2	48.9	47.6	38.4	31.9	50.3	45.4
Calc Days Above State 24-Hr Std								246	234	267	225	216	147	108	186	204	84	114	168	156
Calc Days Above Nat 24-Hr Std								27	21	27	18	6	0	12	3	0	0	6	6	0

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator	10.9	10.0	8.6	8.2	7.4	7.3	7.0	7.4	8.8	9.4	9.5	8.5	6.8	5.4	5.3	5.1	4.7	4.1	4.8	6.1
Max. 1-Hr. Concentration	14.0	14.0	14.0	11.0	10.0	14.0	10.0	12.0	14.0	13.0	13.0	11.0	8.0	8.8	7.8	8.7	6.1	5.7	10.5	10.1
Max. 8-Hr. Concentration	10.1	11.3	9.7	6.9	6.0	8.8	6.9	8.9	11.0	8.6	8.1	5.8	6.1	6.4	6.2	7.7	4.0	3.9	5.0	5.4
Days Above State 8-Hr. Std.	1	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	1	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator	0.152	0.138	0.133	0.119	0.127	0.125	0.125	0.128	0.133	0.136	0.131	0.120	0.114	0.110	0.109	0.105	0.103	0.096	0.098	0.101
Max. 1-Hr. Concentration	0.170	0.110	0.140	0.140	0.160	0.120	0.100	0.120	0.130	0.140	0.110	0.110	0.100	0.089	0.109	0.110	0.081	0.100	0.107	0.089
Max. Annual Average	0.034	0.030	0.030	0.028	0.031	0.030	0.029	0.032	0.033	0.031	0.030	0.027	0.017	0.017	0.029	0.029	0.024	0.022	0.027	0.024

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator	0.15	0.14	0.12	0.09	0.09	0.09	0.08	0.07	0.06	0.06	0.04	0.04	0.03	0.02	0.02	0.03	0.03		0.01	0.02
Max. 24-Hr. Concentration	0.06	0.04	0.05	0.03	0.03	0.02	0.02	0.03	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01		0.01	0.00
Max. Annual Average	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00

Table A-85

A portion of Kern County lies within the Mojave Desert Air Basin.

San Joaquin Valley Air Basin

County: Kings

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator	0.125	0.113	0.120	0.122	0.127	0.125	0.128	0.127	0.124	0.119	0.112	0.106	0.109	0.111	0.106	0.137	0.137	0.137	0.124	0.127
National 1-Hr. Design Value	0.120	0.110	0.120	0.120	0.120	0.120	0.130	0.130	0.130	0.130	0.110	0.100	0.110	0.109	0.109	0.138	0.138	0.138	0.128	0.128
Nat. 8-Hr. Design Value	0.087	0.082	0.087	0.095	0.098	0.088	0.088	0.088	0.096	0.091	0.088	0.080	0.080	0.093	0.086	0.096	0.097	0.105	0.099	0.102
Maximum 1-Hr. Concentration	0.110	0.110	0.130	0.120	0.140	0.110	0.130	0.150	0.130	0.100	0.110	0.100	0.110	0.119	0.096	0.144	0.126	0.143	0.140	0.124
Max. 8-Hr. Concentration	0.083	0.096	0.105	0.102	0.101	0.096	0.104	0.107	0.112	0.092	0.093	0.078	0.093	0.102	0.085	0.121	0.106	0.113	0.111	0.110
Days Above State Standard	2	13	20	20	14	1	19	34	13	4	15	1	2	9	2	78	23	27	28	48
Days Above Nat. 1-Hr. Std.	0	0	1	0	2	0	2	3	1	0	0	0	0	0	0	8	2	3	2	0
Days Above Nat. 8-Hr. Std.	0	8	14	20	14	1	14	28	10	3	9	0	2	12	1	81	26	31	25	51

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration								159	202	439	279	167	239	125	279	143	199	146	174	128
Max. Annual Geometric Mean								34.8	57.3	48.4	50.4		44.3	44.3	43.6	35.4	42.3		41.3	37.7
Calc Days Above State 24-Hr Std								138	198	162	180	162	162	156	174	111	102	90	132	120
Calc Days Above Nat 24-Hr Std								6	30	12	24	6	18	0	9	0	6	0	9	0

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. 8-Hr. Concentration																				
Days Above State 8-Hr. Std.																				
Days Above Nat. 8-Hr. Std.																				

No Monitoring Data Available

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator														0.087	0.094	0.091	0.091	0.081	0.084	0.079
Max. 1-Hr. Concentration														0.082	0.094	0.066	0.080	0.086	0.086	0.072
Max. Annual Average														0.015	0.015		0.014	0.014		0.014

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-86

San Joaquin Valley Air Basin

County: Madera

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator	0.142								0.118	0.113	0.117	0.114	0.125	0.121	0.124	0.122		0.122	0.115	0.111
National 1-Hr. Design Value	0.130							0.110	0.120	0.120	0.120	0.110	0.130	0.130	0.130	0.121	0.084	0.110	0.117	0.117
Nat. 8-Hr. Design Value	0.095							0.097	0.096	0.093	0.093	0.091	0.096	0.091	0.093	0.093	0.070	0.081	0.083	0.089
Maximum 1-Hr. Concentration	0.130							0.130	0.120	0.110	0.130	0.120	0.150	0.103	0.117	0.134	0.085	0.127	0.118	0.104
Max. 8-Hr. Concentration	0.117							0.106	0.101	0.098	0.101	0.097	0.110	0.086	0.102	0.111	0.080	0.116	0.095	0.096
Days Above State Standard	26							11	15	6	24	15	28	4	16	28	0	15	12	8
Days Above Nat. 1-Hr. Std.	1							1	0	0	2	0	6	0	0	2	0	1	0	0
Days Above Nat. 8-Hr. Std.	26							8	15	13	17	12	26	1	15	28	0	12	10	9

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration								108	162	174	118	96	128	105	111	89				
Max. Annual Geometric Mean								47.1	47.6	43.4	42.4	40.3	38.7	35.7	34.1					
Calc Days Above State 24-Hr Std								156	150	138	162	108	132	72	120	42				
Calc Days Above Nat 24-Hr Std								0	6	6	0	0	0	0	0	0				

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. 8-Hr. Concentration																				
Days Above State 8-Hr. Std.																				
Days Above Nat. 8-Hr. Std.																				

No Monitoring Data Available

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																	0.088	0.053	0.068	0.066
Max. 1-Hr. Concentration																	0.077	0.060	0.084	0.060
Max. Annual Average																		0.011	0.014	0.013

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-87

San Joaquin Valley Air Basin

County: Merced

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator		0.137										0.124	0.122	0.122	0.124	0.127	0.129	0.132	0.134	0.132
National 1-Hr. Design Value	0.070	0.130									0.120	0.120	0.120	0.120	0.125	0.125	0.125	0.131	0.132	0.132
Nat. 8-Hr. Design Value	0.047	0.107									0.097	0.099	0.098	0.098	0.100	0.102	0.094	0.096	0.097	0.106
Maximum 1-Hr. Concentration	0.070	0.140									0.130	0.120	0.130	0.123	0.130	0.131	0.102	0.143	0.132	0.120
Max. 8-Hr. Concentration	0.055	0.118									0.111	0.107	0.110	0.107	0.114	0.116	0.095	0.129	0.117	0.112
Days Above State Standard	0	48									13	39	22	31	38	44	1	37	42	32
Days Above Nat. 1-Hr. Std.	0	6									2	0	1	0	3	1	0	3	2	0
Days Above Nat. 8-Hr. Std.	0	46									12	40	19	26	36	44	1	35	40	37

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration								114	148	211	145	98	121	131	100	61			134	104
Max. Annual Geometric Mean									45.0	44.7	42.7	41.1	33.5	34.5	32.3					30.4
Calc Days Above State 24-Hr Std								138	108	144	144	132	102	60	90	24			75	54
Calc Days Above Nat 24-Hr Std								0	0	6	0	0	0	0	0	0			0	0

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator																				
Max. 1-Hr. Concentration	8.0	7.0									10.0	9.0								
Max. 8-Hr. Concentration	4.7	4.0									5.4	4.8								
Days Above State 8-Hr. Std.	0	0									0	0								
Days Above Nat. 8-Hr. Std.	0	0									0	0								

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator												0.075	0.080	0.080	0.078	0.076	0.076	0.075	0.074	
Max. 1-Hr. Concentration	0.080	0.070									0.090	0.070	0.090	0.076	0.073	0.071	0.072	0.063	0.078	
Max. Annual Average													0.014	0.013	0.012	0.012	0.013	0.012		

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-88

San Joaquin Valley Air Basin

County: San Joaquin

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator	0.141	0.139	0.151	0.145	0.141	0.136	0.134	0.134	0.133	0.132	0.119	0.117	0.117	0.117	0.122	0.123	0.122	0.124	0.123	0.121
National 1-Hr. Design Value	0.140	0.130	0.130	0.130	0.140	0.140	0.130	0.130	0.130	0.130	0.120	0.120	0.110	0.119	0.124	0.120	0.119	0.116	0.118	0.118
Nat. 8-Hr. Design Value	0.097	0.091	0.106	0.107	0.104	0.101	0.097	0.098	0.093	0.090	0.087	0.088	0.088	0.087	0.091	0.092	0.087	0.087	0.087	0.088
Maximum 1-Hr. Concentration	0.140	0.130	0.150	0.150	0.140	0.140	0.160	0.130	0.120	0.130	0.120	0.110	0.130	0.128	0.134	0.140	0.119	0.126	0.144	0.122
Max. 8-Hr. Concentration	0.117	0.102	0.115	0.114	0.112	0.115	0.110	0.103	0.103	0.102	0.095	0.090	0.097	0.101	0.107	0.096	0.099	0.100	0.113	0.094
Days Above State Standard	23	15	32	49	35	31	54	37	10	17	26	21	12	16	16	26	6	19	16	9
Days Above Nat. 1-Hr. Std.	4	1	9	4	5	3	1	4	0	1	0	0	1	1	2	2	0	1	3	0
Days Above Nat. 8-Hr. Std.	14	4	26	35	24	17	30	21	4	7	10	10	4	6	9	14	3	7	10	3

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration								153	146	251	140	145	104	109	109	127	130	106	150	104
Max. Annual Geometric Mean										43.3				32.6		23.7	26.8	24.4	30.2	29.1
Calc Days Above State 24-Hr Std								120	108	129	126	108	78	60	18	18	30	48	60	51
Calc Days Above Nat 24-Hr Std								0	0	6	0	0	0	0	0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator	9.7	9.2	9.9	10.5	10.3	13.6	13.9	14.1	12.2	13.7	13.2	11.5	9.2	7.5	7.5	7.3	6.2	6.0	6.2	6.8
Max. 1-Hr. Concentration	14.0	18.0	17.0	16.0	13.0	19.0	16.0	14.0	16.0	17.0	15.0	11.0	10.0	11.3	10.3	11.0	7.7	10.2	11.3	8.1
Max. 8-Hr. Concentration	7.5	11.5	12.1	7.8	8.4	12.1	12.9	11.4	11.0	11.5	11.4	8.3	6.9	7.8	6.2	7.6	4.2	7.9	7.8	6.6
Days Above State 8-Hr. Std.	0	2	3	0	0	9	1	1	6	7	2	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0	2	3	0	0	8	1	1	4	6	2	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator	0.135	0.131	0.112	0.107	0.111	0.122	0.122	0.126	0.122	0.130	0.134	0.132	0.132	0.131	0.127	0.113	0.102	0.097	0.103	0.102
Max. 1-Hr. Concentration	0.140	0.120	0.100	0.090	0.110	0.160	0.100	0.110	0.130	0.120	0.110	0.190	0.160	0.144	0.119	0.088	0.090	0.102	0.106	0.099
Max. Annual Average	0.023	0.022	0.022		0.020	0.023	0.025	0.026	0.025	0.026	0.025	0.023	0.024	0.024	0.022	0.023	0.022	0.023	0.015	0.021

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.04											
Max. 24-Hr. Concentration	0.01	0.01	0.02	0.01	0.01	0.01	0.02	0.01	0.01											
Max. Annual Average	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00											

Table A-89

San Joaquin Valley Air Basin

County: Stanislaus

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator	0.160	0.141	0.140	0.143	0.148	0.152	0.149	0.143	0.142	0.131	0.126	0.122	0.119	0.120	0.127	0.129	0.131	0.132	0.130	0.127
National 1-Hr. Design Value	0.140	0.140	0.140	0.140	0.140	0.140	0.140	0.140	0.140	0.130	0.120	0.120	0.110	0.114	0.125	0.125	0.125	0.129	0.127	0.131
Nat. 8-Hr. Design Value	0.107	0.097	0.099	0.102	0.109	0.102	0.100	0.099	0.102	0.099	0.095	0.095	0.095	0.093	0.095	0.096	0.096	0.098	0.095	0.096
Maximum 1-Hr. Concentration	0.150	0.110	0.140	0.160	0.150	0.130	0.150	0.140	0.130	0.150	0.120	0.120	0.130	0.123	0.131	0.129	0.120	0.153	0.119	0.131
Max. 8-Hr. Concentration	0.126	0.100	0.108	0.136	0.122	0.102	0.127	0.126	0.120	0.110	0.102	0.102	0.108	0.100	0.111	0.111	0.100	0.125	0.104	0.107
Days Above State Standard	46	37	47	56	57	39	77	64	41	32	33	27	19	28	28	39	15	35	19	16
Days Above Nat. 1-Hr. Std.	11	0	5	13	10	2	18	5	3	3	0	0	2	0	2	2	0	4	0	1
Days Above Nat. 8-Hr. Std.	27	11	36	47	43	21	68	44	26	22	13	11	13	12	21	20	8	29	12	10

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration								175	148	180	157	150	154	160	120	133	119	125	157	112
Max. Annual Geometric Mean								40.1	41.4	40.7	42.0	38.6	33.6	36.1	34.9	27.4	33.3	25.2	33.6	29.8
Calc Days Above State 24-Hr Std								126	132	132	144	108	102	90	90	45	54	48	84	60
Calc Days Above Nat 24-Hr Std								6	0	6	6	0	0	6	0	0	0	0	6	0

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator	9.8	7.6	8.1	8.5	9.5	10.4	10.5	10.6	11.9	12.4	12.4	10.1	9.0	7.7	7.4	7.0	6.0	5.5	6.1	7.0
Max. 1-Hr. Concentration	15.0	11.0	14.0	15.0	15.0	18.0	12.0	17.0	17.0	17.0	19.0	10.0	11.0	9.5	11.4	9.2	7.1	9.4	11.4	8.0
Max. 8-Hr. Concentration	11.8	7.2	8.8	8.4	11.0	11.3	8.6	13.1	13.4	10.9	10.8	6.5	8.6	6.3	5.7	6.5	5.0	7.3	6.4	6.0
Days Above State 8-Hr. Std.	1	0	0	0	2	4	0	2	11	2	2	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	1	0	0	0	1	4	0	1	8	2	1	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator	0.161	0.116	0.117	0.107	0.111	0.121	0.126	0.129	0.126	0.128	0.119	0.109	0.108	0.102	0.102	0.095	0.096	0.089	0.103	0.098
Max. 1-Hr. Concentration	0.170	0.130	0.110	0.080	0.120	0.130	0.120	0.130	0.140	0.100	0.110	0.100	0.110	0.093	0.093	0.087	0.093	0.088	0.103	0.079
Max. Annual Average		0.026		0.020	0.022	0.024	0.024	0.027		0.026	0.024	0.022	0.023	0.022	0.022	0.022	0.021	0.018	0.022	0.019

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.03	0.03	0.02	0.02									
Max. 24-Hr. Concentration	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.00	0.01									
Max. Annual Average	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00									

Table A-90

San Joaquin Valley Air Basin

County: Tulare

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator	0.143	0.145	0.140	0.140	0.133	0.140	0.143	0.144	0.142	0.135	0.133	0.124	0.135	0.144	0.143	0.139	0.131	0.134	0.134	0.130
National 1-Hr. Design Value	0.140	0.140	0.130	0.130	0.130	0.140	0.150	0.150	0.150	0.140	0.140	0.130	0.140	0.150	0.150	0.140	0.132	0.139	0.127	0.129
Nat. 8-Hr. Design Value	0.104	0.121	0.112	0.108	0.105	0.108	0.112	0.111	0.111	0.106	0.104	0.101	0.104	0.106	0.107	0.105	0.101	0.102	0.105	0.105
Maximum 1-Hr. Concentration	0.130	0.150	0.140	0.140	0.140	0.160	0.180	0.150	0.160	0.140	0.130	0.130	0.150	0.154	0.132	0.140	0.125	0.148	0.127	0.129
Max. 8-Hr. Concentration	0.108	0.128	0.112	0.117	0.113	0.121	0.133	0.117	0.121	0.115	0.111	0.106	0.125	0.119	0.112	0.111	0.106	0.122	0.112	0.108
Days Above State Standard	54	81	64	73	93	98	121	100	76	63	65	63	76	78	66	81	50	63	84	78
Days Above Nat. 1-Hr. Std.	2	13	4	3	6	13	10	4	10	1	1	2	10	12	3	4	1	6	3	1
Days Above Nat. 8-Hr. Std.	40	85	66	68	96	99	120	97	71	65	66	65	72	82	59	78	54	58	88	76

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration								141	204	285	175	122	108	104	125	115	96	160	152	130
Max. Annual Geometric Mean								60.0					45.0		44.3	38.6	38.5	32.1	45.5	45.2
Calc Days Above State 24-Hr Std								204	228	237	195	144	180	138	153	150	66	102	174	180
Calc Days Above Nat 24-Hr Std								0	12	30	6	0	0	0	0	0	0	6	0	0

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator	7.5	7.0	5.8	5.5	5.5	5.7	5.8	6.0	6.4	6.5	6.5	6.0	5.2	4.4	4.5	4.5	4.2	4.0	4.1	4.1
Max. 1-Hr. Concentration	10.0	10.0	9.0	13.0	9.0	12.0	13.0	14.0	12.0	11.0	14.0	10.0	7.0	8.7	9.3	5.3	7.3	7.4	7.9	5.9
Max. 8-Hr. Concentration	5.5	5.1	5.8	5.4	5.5	6.9	5.8	8.0	6.4	6.7	6.1	4.8	4.0	4.4	4.4	4.0	4.1	3.8	4.1	4.2
Days Above State 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator	0.111	0.110	0.113	0.114	0.120	0.117	0.114	0.118	0.138	0.137	0.130	0.109	0.111	0.113	0.115	0.119	0.115	0.089	0.100	0.098
Max. 1-Hr. Concentration	0.110	0.130	0.110	0.110	0.140	0.110	0.110	0.170	0.210	0.100	0.130	0.100	0.120	0.142	0.112	0.077	0.095	0.081	0.092	0.079
Max. Annual Average	0.022	0.020	0.021	0.023	0.022	0.025	0.019	0.022	0.020	0.021	0.022	0.020	0.023		0.023	0.018	0.019	0.017	0.021	0.018

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator	0.03	0.02	0.02	0.02	0.03	0.03	0.06	0.05	0.06											
Max. 24-Hr. Concentration	0.01	0.00	0.01	0.01	0.05	0.01	0.02	0.01	0.01											
Max. Annual Average	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00											

Table A-91

South Central Coast Air Basin

County: San Luis Obispo

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator	0.101	0.095	0.099	0.099	0.101	0.098	0.097	0.099	0.108	0.105	0.104	0.100	0.099	0.096	0.098	0.108	0.109	0.116	0.114	0.114
National 1-Hr. Design Value	0.100	0.100	0.100	0.100	0.110	0.100	0.100	0.100	0.100	0.100	0.110	0.100	0.100	0.098	0.097	0.107	0.107	0.114	0.113	0.113
Nat. 8-Hr. Design Value	0.074	0.072	0.072	0.075	0.075	0.072	0.072	0.075	0.073	0.075	0.083	0.078	0.075	0.074	0.074	0.080	0.079	0.086	0.082	0.081
Maximum 1-Hr. Concentration	0.100	0.100	0.110	0.160	0.110	0.100	0.130	0.100	0.150	0.100	0.110	0.110	0.100	0.101	0.108	0.141	0.090	0.129	0.099	0.084
Max. 8-Hr. Concentration	0.092	0.082	0.093	0.093	0.088	0.096	0.111	0.086	0.122	0.082	0.101	0.098	0.088	0.089	0.087	0.117	0.077	0.113	0.083	0.080
Days Above State Standard	2	2	7	2	3	5	3	6	8	2	4	3	4	2	7	14	0	25	2	0
Days Above Nat. 1-Hr. Std.	0	0	0	1	0	0	1	0	1	0	0	0	0	0	0	1	0	1	0	0
Days Above Nat. 8-Hr. Std.	1	0	3	2	1	3	2	1	8	0	2	1	2	1	1	10	0	21	0	0

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration								63	84	86	119	135	141	78	73	98	99	70	90	113
Max. Annual Geometric Mean										26.0	22.9	25.6	19.1	20.8	18.7	16.6	20.5	18.9	22.4	18.2
Calc Days Above State 24-Hr Std								12	39	48	42	48	114	6	18	78	48	48	30	84
Calc Days Above Nat 24-Hr Std								0	0	0	0	0	0	0	0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator	5.2	5.0	5.0	4.7	5.2	5.2	5.2	4.7	4.9	5.1	4.8	4.2	3.6	3.2	2.9	2.9	2.6	2.6	2.7	2.7
Max. 1-Hr. Concentration	10.0	12.0	13.0	11.0	11.0	10.0	10.0	10.0	10.0	10.0	8.0	8.0	9.0	6.1	5.7	5.0	6.4	4.4	5.3	3.9
Max. 8-Hr. Concentration	6.6	5.3	4.8	4.7	4.7	4.9	3.9	4.3	6.3	4.1	3.3	3.1	3.2	3.2	3.1	2.9	2.6	2.3	3.1	2.4
Days Above State 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator	0.102	0.096	0.084	0.081	0.088	0.089	0.090	0.085	0.085	0.084	0.078	0.074	0.072	0.070	0.070	0.065	0.063	0.064	0.073	0.070
Max. 1-Hr. Concentration	0.110	0.070	0.090	0.090	0.100	0.090	0.080	0.090	0.090	0.070	0.080	0.060	0.070	0.069	0.069	0.060	0.071	0.061	0.070	0.059
Max. Annual Average	0.016	0.015	0.013	0.015	0.017	0.015	0.015	0.016	0.016	0.010	0.011	0.015	0.014	0.014	0.013	0.013	0.012	0.012	0.014	0.012

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator	0.15	0.15	0.12	0.10	0.34	0.32	0.29	0.22	0.16	0.16	0.14	0.13	0.13	0.03	0.16	0.17	0.16	0.16	0.14	0.14
Max. 24-Hr. Concentration	0.04	0.02	0.02	0.02	0.07	0.06	0.03	0.04	0.02	0.09	0.02	0.02	0.05	0.01	0.04	0.03	0.03	0.04	0.03	0.03
Max. Annual Average	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00

Table A-92

South Central Coast Air Basin

County: Santa Barbara

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator	0.138	0.130	0.132	0.143	0.142	0.136	0.134	0.129	0.140	0.140	0.137	0.131	0.121	0.123	0.122	0.128	0.122	0.117	0.104	0.103
National 1-Hr. Design Value	0.160	0.140	0.140	0.150	0.150	0.150	0.140	0.130	0.147	0.153	0.153	0.137	0.123	0.129	0.126	0.130	0.130	0.130	0.108	0.108
Nat. 8-Hr. Design Value	0.093	0.088	0.091	0.093	0.096	0.098	0.095	0.095	0.097	0.099	0.099	0.096	0.091	0.092	0.090	0.094	0.089	0.087	0.082	0.081
Maximum 1-Hr. Concentration	0.240	0.150	0.160	0.160	0.230	0.160	0.185	0.130	0.220	0.165	0.134	0.140	0.135	0.142	0.143	0.134	0.137	0.130	0.135	0.128
Max. 8-Hr. Concentration	0.138	0.131	0.118	0.118	0.140	0.128	0.141	0.102	0.176	0.141	0.113	0.125	0.110	0.116	0.118	0.122	0.108	0.120	0.110	0.087
Days Above State Standard	17	23	20	21	15	36	37	43	42	40	38	27	23	23	24	23	10	15	3	6
Days Above Nat. 1-Hr. Std.	3	2	7	4	3	7	4	3	9	4	6	5	1	5	3	4	1	2	1	1
Days Above Nat. 8-Hr. Std.	9	7	10	12	9	26	25	28	28	27	25	17	13	11	16	19	4	6	2	2

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration								132	119	96	96	89	90	139	129	78	168	73	51	53
Max. Annual Geometric Mean								31.3	31.7	34.5	23.2	28.5	24.9	25.3	21.9	26.2	28.4	23.8	27.1	23.9
Calc Days Above State 24-Hr Std								30	78	24	48	54	42	30	12	24	12	18	6	12
Calc Days Above Nat 24-Hr Std								0	0	0	0	0	0	0	0	0	6	0	0	0

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator	12.4	12.0	11.3	9.6	10.2	9.9	10.1	9.0	8.8	8.2	7.5	6.4	5.5	5.9	6.0	5.8	5.0	4.8	4.5	4.7
Max. 1-Hr. Concentration	15.0	14.0	16.0	16.0	17.0	18.0	14.0	15.0	11.0	11.0	9.0	12.0	9.0	10.7	7.8	12.6	8.2	8.5	8.2	5.8
Max. 8-Hr. Concentration	9.2	8.7	9.0	10.0	10.5	8.6	7.5	7.4	7.4	5.8	6.4	5.9	4.8	6.5	5.8	4.9	4.0	4.6	4.2	3.1
Days Above State 8-Hr. Std.	1	0	0	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator	0.150	0.135	0.117	0.113	0.116	0.113	0.108	0.094	0.119	0.119	0.120	0.104	0.099	0.089	0.091	0.091	0.085	0.081	0.078	0.081
Max. 1-Hr. Concentration	0.120	0.140	0.130	0.170	0.160	0.150	0.140	0.160	0.120	0.110	0.160	0.100	0.090	0.100	0.113	0.107	0.065	0.089	0.096	0.124
Max. Annual Average	0.023	0.024		0.031	0.030	0.022	0.017	0.012	0.027	0.015	0.024	0.022	0.022	0.022	0.021	0.019	0.019	0.021	0.022	0.012

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator	0.07	0.06	0.05	0.05	0.05	0.08	0.09	0.07	0.07	0.06	0.05	0.04	0.03	0.03	0.03	0.03	0.02	0.02	0.01	0.01
Max. 24-Hr. Concentration	0.02	0.02	0.02	0.02	0.03	0.04	0.04	0.02	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Max. Annual Average	0.00	0.00	0.00	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table A-93

South Central Coast Air Basin

County: Ventura

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator	0.200	0.198	0.195	0.188	0.181	0.177	0.172	0.176	0.173	0.172	0.164	0.159	0.157	0.147	0.162	0.161	0.153	0.143	0.135	0.132
National 1-Hr. Design Value	0.190	0.200	0.220	0.210	0.190	0.180	0.180	0.180	0.170	0.170	0.170	0.150	0.150	0.146	0.157	0.158	0.152	0.144	0.134	0.132
Nat. 8-Hr. Design Value	0.146	0.144	0.143	0.137	0.132	0.131	0.129	0.131	0.132	0.130	0.127	0.118	0.115	0.112	0.117	0.119	0.115	0.112	0.106	0.105
Maximum 1-Hr. Concentration	0.230	0.230	0.230	0.190	0.200	0.180	0.180	0.180	0.230	0.170	0.170	0.150	0.146	0.164	0.169	0.158	0.134	0.174	0.132	0.128
Max. 8-Hr. Concentration	0.170	0.168	0.165	0.158	0.156	0.145	0.153	0.142	0.166	0.143	0.140	0.123	0.129	0.132	0.144	0.127	0.114	0.151	0.112	0.108
Days Above State Standard	149	142	125	132	136	149	123	135	116	99	107	68	58	88	90	80	59	41	33	38
Days Above Nat. 1-Hr. Std.	85	70	58	45	44	59	31	55	46	18	33	10	13	17	23	17	2	5	2	1
Days Above Nat. 8-Hr. Std.	134	123	109	108	111	120	88	110	94	70	92	57	46	64	67	65	46	30	23	30

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration								118	92	133	90	84	118	78	94	93	321	110	84	100
Max. Annual Geometric Mean								36.2	36.2	31.9	34.3	28.0	25.5	26.0	23.3	24.3	26.4	21.3	28.1	26.2
Calc Days Above State 24-Hr Std								114	132	66	96	42	30	24	48	30	48	12	36	36
Calc Days Above Nat 24-Hr Std								0	0	0	0	0	0	0	0	0	6	0	0	0

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator		6.5	6.3	6.0	5.9	6.2	5.7	5.7	4.9	4.9	4.7	4.5	3.9	3.6	4.0	4.0	3.9	3.6	3.3	3.4
Max. 1-Hr. Concentration		13.0	15.0	12.0	12.0	15.0	12.0	9.0	10.0	10.0	9.0	7.0	9.0	7.7	8.9	7.8	7.4	7.2	6.8	6.2
Max. 8-Hr. Concentration		6.0	6.0	5.0	6.0	7.0	5.7	4.4	4.1	5.0	4.3	3.0	3.7	4.2	4.3	3.4	3.8	3.5	3.6	4.3
Days Above State 8-Hr. Std.		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator	0.150	0.150	0.139	0.140	0.136	0.132	0.130	0.123	0.117	0.119	0.120	0.114	0.104	0.104	0.112	0.114	0.110	0.097	0.089	0.086
Max. 1-Hr. Concentration	0.120	0.180	0.160	0.200	0.120	0.130	0.150	0.110	0.120	0.160	0.110	0.100	0.110	0.133	0.127	0.110	0.115	0.097	0.099	0.095
Max. Annual Average		0.023	0.018	0.009		0.015	0.016	0.024	0.027	0.025	0.024	0.012	0.023	0.020	0.024	0.015	0.020	0.019	0.017	0.020

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator		0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.02
Max. 24-Hr. Concentration		0.01	0.01	0.01	0.03	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.01	0.01	0.01	0.01
Max. Annual Average		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table A-94

South Coast Air Basin

County: Los Angeles

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator	0.401	0.373	0.365	0.354	0.375	0.360	0.344	0.319	0.320	0.310	0.304	0.286	0.297	0.279	0.249	0.230	0.229	0.217	0.193	0.193
National 1-Hr. Design Value	0.420	0.390	0.360	0.360	0.360	0.350	0.350	0.340	0.330	0.330	0.310	0.300	0.300	0.280	0.250	0.223	0.209	0.200	0.188	0.188
Nat. 8-Hr. Design Value	0.235	0.233	0.229	0.225	0.226	0.222	0.217	0.205	0.192	0.186	0.179	0.177	0.177	0.168	0.156	0.145	0.135	0.133	0.118	0.115
Maximum 1-Hr. Concentration	0.390	0.400	0.390	0.340	0.390	0.350	0.330	0.340	0.340	0.290	0.320	0.300	0.280	0.300	0.216	0.205	0.170	0.222	0.154	0.174
Max. 8-Hr. Concentration	0.257	0.265	0.258	0.226	0.288	0.251	0.210	0.258	0.235	0.177	0.183	0.218	0.185	0.208	0.158	0.150	0.130	0.171	0.108	0.146
Days Above State Standard	216	180	178	196	201	209	190	205	192	168	159	174	158	142	127	109	89	68	43	57
Days Above Nat. 1-Hr. Std.	178	142	146	153	154	162	147	165	140	120	111	129	102	102	79	55	27	35	6	12
Days Above Nat. 8-Hr. Std.	180	153	154	160	164	177	158	181	150	131	128	139	108	118	92	68	43	46	19	27

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration								149	172	161	151	222	104	127	157	138	116	87	103	105
Max. Annual Geometric Mean								57.1	59.5	48.3	59.7	44.1	42.8	41.1	40.8	39.4	40.8	34.5	51.5	37.0
Calc Days Above State 24-Hr Std								246	240	186	234	144	156	144	138	144	144	96	210	144
Calc Days Above Nat 24-Hr Std								0	6	6	0	12	0	0	6	0	0	0	0	0

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator	24.1	24.1	21.0	20.2	21.1	21.1	21.7	21.9	22.5	21.9	19.0	17.7	16.5	16.7	15.6	16.1	15.4	15.4	13.7	12.6
Max. 1-Hr. Concentration	31.0	27.0	31.0	29.0	33.0	27.0	26.0	32.0	31.0	24.0	30.0	28.0	21.0	24.9	16.8	22.5	19.2	17.0	19.0	13.5
Max. 8-Hr. Concentration	25.5	21.3	20.9	19.7	27.7	19.7	19.6	27.5	21.8	16.8	17.4	18.8	14.6	18.2	13.8	17.5	17.1	13.3	11.2	10.1
Days Above State 8-Hr. Std.	87	79	65	77	62	57	50	70	70	49	51	39	29	27	17	26	18	13	11	6
Days Above Nat. 8-Hr. Std.	76	68	56	63	53	49	40	63	67	41	41	34	19	19	14	19	13	10	7	3

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator	0.445	0.414	0.378	0.324	0.317	0.303	0.311	0.335	0.322	0.324	0.312	0.311	0.285	0.241	0.229	0.242	0.237	0.202	0.180	0.168
Max. 1-Hr. Concentration	0.450	0.410	0.470	0.350	0.350	0.330	0.420	0.540	0.340	0.280	0.380	0.300	0.260	0.247	0.239	0.250	0.200	0.170	0.212	0.173
Max. Annual Average	0.071	0.062	0.059	0.057	0.060	0.061	0.055	0.061	0.057	0.055	0.055	0.051	0.050	0.050	0.046	0.042	0.043	0.043	0.051	0.044

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator	0.11	0.10	0.10	0.11	0.10	0.09	0.07	0.06	0.06	0.06	0.06	0.11	0.10	0.10	0.06	0.05	0.06	0.05	0.05	0.05
Max. 24-Hr. Concentration	0.04	0.04	0.04	0.06	0.04	0.04	0.02	0.04	0.02	0.04	0.02	0.03	0.01	0.01	0.02	0.01	0.01	0.01	0.02	0.02
Max. Annual Average	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table A-95

A portion of Los Angeles County lies within the Mojave Desert Air Basin.

South Coast Air Basin

County: Orange

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator	0.298	0.288	0.290	0.297	0.295	0.274	0.267	0.246	0.235	0.227	0.219	0.205	0.197	0.189	0.163	0.156	0.137	0.141	0.131	0.131
National 1-Hr. Design Value	0.310	0.290	0.280	0.290	0.280	0.270	0.260	0.240	0.240	0.240	0.220	0.210	0.190	0.190	0.170	0.156	0.138	0.144	0.130	0.127
Nat. 8-Hr. Design Value	0.162	0.155	0.166	0.163	0.166	0.157	0.152	0.142	0.141	0.138	0.127	0.120	0.114	0.117	0.107	0.100	0.088	0.088	0.084	0.084
Maximum 1-Hr. Concentration	0.330	0.320	0.300	0.320	0.340	0.250	0.240	0.290	0.260	0.210	0.250	0.220	0.190	0.252	0.160	0.150	0.134	0.182	0.116	0.137
Max. 8-Hr. Concentration	0.190	0.211	0.196	0.177	0.208	0.158	0.165	0.195	0.167	0.142	0.145	0.158	0.122	0.172	0.109	0.103	0.100	0.115	0.091	0.110
Days Above State Standard	107	79	110	107	101	101	81	96	81	80	71	63	59	46	39	27	13	22	8	13
Days Above Nat. 1-Hr. Std.	69	42	65	65	63	53	42	45	38	37	32	35	17	9	4	6	3	6	0	2
Days Above Nat. 8-Hr. Std.	67	48	73	75	66	62	54	50	44	39	36	35	25	15	8	9	3	6	1	4

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration								132	138	158	146	88	115	106	172	101	91	81	122	126
Max. Annual Geometric Mean								35.1	38.1		40.0	28.8	34.3	34.2	35.9	31.8	36.3	33.0	34.2	35.7
Calc Days Above State 24-Hr Std								90	126	117	84	66	78	66	78	36	66	72	90	45
Calc Days Above Nat 24-Hr Std								0	0	6	0	0	0	0	6	0	0	0	0	0

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator	17.1	16.8	13.2	11.8	11.6	11.0	11.3	10.9	11.5	11.5	10.8	9.4	8.8	8.7	8.2	8.5	7.3	6.7	6.4	6.7
Max. 1-Hr. Concentration	22.0	21.0	22.0	21.0	22.0	20.0	21.0	20.0	24.0	19.0	21.0	21.0	15.0	16.1	12.7	12.9	11.9	15.0	11.4	13.8
Max. 8-Hr. Concentration	13.4	11.9	11.7	14.4	17.0	10.4	10.6	12.0	12.1	11.7	8.6	9.4	7.7	8.6	8.0	7.4	6.0	7.1	6.4	6.7
Days Above State 8-Hr. Std.	24	13	8	7	9	4	3	9	13	6	0	3	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	22	9	8	5	7	4	2	7	12	5	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator	0.361	0.345	0.302	0.266	0.252	0.236	0.240	0.238	0.241	0.235	0.231	0.221	0.220	0.201	0.196	0.188	0.171	0.141	0.143	0.149
Max. 1-Hr. Concentration	0.360	0.280	0.330	0.250	0.300	0.210	0.220	0.280	0.280	0.220	0.200	0.210	0.200	0.230	0.192	0.160	0.145	0.135	0.165	0.139
Max. Annual Average	0.053	0.048	0.045	0.046	0.043	0.045	0.042	0.046	0.047	0.047	0.045	0.039	0.039	0.041	0.039	0.035	0.033	0.034	0.035	0.029

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator	0.12	0.10	0.06	0.05	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.03	0.03	0.02	0.02	0.01	0.01	0.01	0.02	0.01
Max. 24-Hr. Concentration	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.00	0.01
Max. Annual Average	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table A-96

South Coast Air Basin

County: Riverside

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator	0.353	0.357	0.335	0.333	0.332	0.308	0.297	0.276	0.269	0.263	0.261	0.251	0.240	0.222	0.207	0.192	0.188	0.188	0.176	0.171
National 1-Hr. Design Value	0.350	0.350	0.340	0.330	0.330	0.320	0.290	0.270	0.270	0.270	0.270	0.250	0.240	0.240	0.220	0.200	0.187	0.187	0.170	0.166
Nat. 8-Hr. Design Value	0.231	0.212	0.199	0.201	0.209	0.197	0.191	0.180	0.180	0.177	0.175	0.169	0.165	0.157	0.149	0.140	0.135	0.129	0.124	0.114
Maximum 1-Hr. Concentration	0.370	0.350	0.360	0.320	0.350	0.270	0.290	0.280	0.270	0.290	0.240	0.260	0.260	0.253	0.213	0.203	0.187	0.195	0.144	0.164
Max. 8-Hr. Concentration	0.230	0.211	0.230	0.202	0.230	0.217	0.186	0.241	0.213	0.181	0.196	0.193	0.195	0.208	0.161	0.162	0.148	0.169	0.123	0.126
Days Above State Standard	208	157	163	182	177	174	175	191	182	150	155	159	157	144	134	107	128	80	83	93
Days Above Nat. 1-Hr. Std.	153	116	123	132	132	118	125	133	119	97	99	99	86	90	69	50	40	40	9	23
Days Above Nat. 8-Hr. Std.	169	138	136	156	159	146	151	152	148	122	132	135	124	127	99	84	106	65	56	70

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration								252	252	250	179	126	231	161	219	162	227	116	153	139
Max. Annual Geometric Mean								81.8	81.3	66.9	65.5	49.3	58.0	56.0	51.8	52.0	56.3		64.9	54.6
Calc Days Above State 24-Hr Std								306	300	276	246	234	252	246	228	255	246	186	258	246
Calc Days Above Nat 24-Hr Std								30	33	18	12	0	18	6	24	6	6	0	0	0

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator	8.6	8.9	9.0	8.3	7.9	8.4	8.7	8.7	8.5	8.1	8.0	6.9	6.6	6.3	6.2	6.2	5.9	5.3	4.7	4.7
Max. 1-Hr. Concentration	13.0	13.0	15.0	16.0	14.0	18.0	13.0	17.0	14.0	15.0	14.0	11.0	10.0	11.0	9.0	9.1	10.7	6.4	7.4	8.8
Max. 8-Hr. Concentration	9.6	8.6	7.9	8.9	9.1	8.3	7.6	10.0	10.3	7.3	7.4	6.1	7.1	7.3	6.3	5.3	5.6	4.8	4.4	4.2
Days Above State 8-Hr. Std.	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator	0.245	0.250	0.174	0.161	0.162	0.160	0.163	0.170	0.176	0.174	0.172	0.168	0.159	0.138	0.134	0.133	0.127	0.167	0.185	0.213
Max. 1-Hr. Concentration	0.320	0.160	0.190	0.170	0.160	0.160	0.210	0.190	0.160	0.160	0.210	0.230	0.140	0.181	0.147	0.110	0.200	0.255	0.307	0.214
Max. Annual Average	0.049	0.034	0.034	0.035	0.035	0.032	0.027		0.036	0.034	0.035	0.030		0.031	0.030	0.029	0.026	0.017	0.025	0.022

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator	0.07	0.06	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.02	0.02	0.03
Max. 24-Hr. Concentration	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.01	0.04
Max. Annual Average	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table A-97

Portions of Riverside County lie within the Mojave Desert and Salton Sea Air Basins.

South Coast Air Basin

County: San Bernardino

OZONE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hour Indicator	0.394	0.385	0.322	0.328	0.330	0.321	0.304	0.284	0.277	0.273	0.265	0.266	0.252	0.252	0.232	0.233	0.222	0.224	0.211	0.213
National 1-Hr. Design Value	0.390	0.360	0.320	0.320	0.320	0.320	0.320	0.290	0.280	0.280	0.270	0.270	0.250	0.250	0.234	0.231	0.215	0.217	0.211	0.211
Nat. 8-Hr. Design Value	0.251	0.222	0.214	0.210	0.211	0.211	0.200	0.195	0.188	0.185	0.182	0.180	0.177	0.171	0.165	0.161	0.148	0.154	0.147	0.146
Maximum 1-Hr. Concentration	0.360	0.320	0.360	0.340	0.340	0.310	0.290	0.350	0.320	0.330	0.290	0.280	0.270	0.265	0.256	0.239	0.205	0.244	0.174	0.184
Max. 8-Hr. Concentration	0.282	0.255	0.236	0.248	0.252	0.240	0.198	0.250	0.252	0.193	0.203	0.211	0.185	0.192	0.203	0.173	0.143	0.206	0.142	0.149
Days Above State Standard	209	175	169	197	184	179	179	193	192	161	160	176	170	158	135	132	122	100	98	101
Days Above Nat. 1-Hr. Std.	171	136	137	162	138	145	141	153	143	115	109	123	112	115	91	79	53	58	37	25
Days Above Nat. 8-Hr. Std.	186	152	147	178	166	167	163	174	169	145	143	164	157	142	110	110	93	88	87	75

PM_{10} (ug/m3)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Max. 24-Hour Concentration								289	271	475	163	649	143	147	178	136	208	114	183	124
Max. Annual Geometric Mean								66.9	69.7	62.7	60.3	62.4	50.1	52.7	50.5	48.2	47.6	43.3	54.3	47.0
Calc Days Above State 24-Hr Std								282	294	258	246	234	228	225	210	210	174	168	222	192
Calc Days Above Nat 24-Hr Std								18	18	18	6	12	0	0	18	0	6	0	6	0

CARBON MONOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 8-Hr. Indicator	9.8	8.0	6.4	6.2	5.8	7.2	7.1	7.5	7.8	7.7	7.4	6.7	6.0	5.5	6.4	6.3	6.1	5.1	4.9	4.9
Max. 1-Hr. Concentration	15.0	10.0	17.0	9.0	10.0	9.0	11.0	9.0	11.0	9.0	8.0	7.0	7.0	7.6	7.7	5.8	7.6	6.3	5.5	4.8
Max. 8-Hr. Concentration	7.6	6.9	12.5	5.6	6.3	6.7	6.7	7.6	8.1	6.6	7.0	5.9	6.0	6.4	6.3	4.5	5.9	4.7	4.1	4.1
Days Above State 8-Hr. Std.	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator	0.217	0.223	0.214	0.180	0.171	0.172	0.183	0.193	0.195	0.192	0.187	0.174	0.167	0.160	0.178	0.180	0.178	0.143	0.139	0.137
Max. 1-Hr. Concentration	0.200	0.200	0.250	0.200	0.180	0.240	0.200	0.210	0.200	0.200	0.210	0.140	0.160	0.177	0.199	0.163	0.153	0.154	0.149	0.143
Max. Annual Average	0.049	0.044	0.042	0.040	0.040	0.042	0.047	0.047	0.045	0.041	0.043	0.040	0.042	0.041	0.046	0.038	0.036	0.036	0.039	0.038

SULFUR DIOXIDE (ppm)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Peak 1-Hr. Indicator	0.11	0.11	0.07	0.05	0.04	0.05	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.02	0.02
Max. 24-Hr. Concentration	0.03	0.03	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.01	0.00	0.01	0.01	0.01
Max. Annual Average	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table A-98

A portion of San Bernardino County lies within the Mojave Desert Air Basin.

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APPENDIX B

Air Quality Trend Data by Pollutant:

Ozone, PM_{10}, CO, NO_2, SO_2

Appendix B: *Air Quality Trend Data by Pollutant: Ozone, PM_{10}, CO, NO_2, SO_2*

List of Tables

List of Tables (continued)

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Introduction

This appendix contains air quality trend data for each of California's 15 air basins, organized by pollutant. The five pollutants included are ozone, particulate matter (PM_{10}), carbon monoxide (CO), nitrogen dioxide (NO_2), and sulfur dioxide (SO_2). The statistics are the same as those presented in Chapter 4, and the time period covered is 1981 through 2000 for ozone, CO, NO_2, and SO_2, and 1988 through 2000 for PM_{10}.

Air quality statistics can fluctuate from year-to-year because of the influence of meteorology and/or changes in emissions. However, the statistics can also vary because of a change in monitoring site. The statistics listed here reflect the highest value for the statistic at any site in the area. As a result, the statistic may not reflect the same site during the entire trend period. For example, the carbon monoxide concentrations in Imperial County in the Salton Sea Air Basin are below the levels of the State and national standards from 1980 through 1993. In 1994, however, the concentrations show a significant increase, and both the State and national standards are violated. The CO concentrations in the Salton Sea Air Basin did not suddenly increase during 1994. Instead, monitoring began at a new site in Calexico, and the concentrations at the new site were higher than at the existing sites in the air basin. Information about the time periods for which air quality data are available for different pollutants at sites in California and in Baja, Mexico is available on the ARB web site at: *www.arb.ca.gov/aqd/namslams/namslams.htm*.

Since the air quality statistics reflect the highest values in the area, the monitoring sites represented also may not be consistent among the various statistics during a particular year. For example, the monitoring site reflected in the maximum 1-hour ozone concentration may not be the same as the monitoring site reflected in the maximum 8-hour ozone concentration.

Ozone

Peak 1-Hour Indicator (ppm)

AIR BASIN	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
GREAT BASIN VALLEYS	0.088	0.094	0.091	0.096	0.094	0.100	0.099	0.100	0.099	0.100	0.099	0.115	0.110	0.108	0.097	0.099	0.096	0.095	0.090	0.090
LAKE COUNTY	0.086	0.083	0.077	0.079	0.075	0.081	0.081	0.080	0.083	0.074	0.075	0.077	0.077	0.083	0.082	0.082	0.076	0.076	0.087	0.084
LAKE TAHOE	0.090	0.088	0.086	0.080	0.081	0.082	0.085	0.089	0.091	0.091	0.093	0.089	0.079	0.082	0.084	0.084	0.083	0.082	0.081	0.089
MOJAVE DESERT	0.315	0.220	0.205	0.193	0.200	0.235	0.231	0.234	0.204	0.215	0.223	0.220	0.193	0.191	0.194	0.186	0.171	0.176	0.162	0.154
MOUNTAIN COUNTIES	0.094					0.090	0.129	0.155	0.138	0.134	0.118	0.127	0.122	0.127	0.131	0.137	0.140	0.147	0.144	0.144
NORTH CENTRAL COAST	0.129	0.119	0.108	0.104	0.113	0.109	0.146	0.136	0.131	0.115	0.114	0.115	0.111	0.107	0.106	0.111	0.112	0.113	0.103	0.104
NORTH COAST	0.094	0.079	0.076	0.076	0.073	0.074	0.083	0.062	0.058	0.066	0.063	0.085	0.088	0.089	0.090	0.088	0.091	0.103	0.109	0.105
NORTHEAST PLATEAU		0.071	0.072	0.074	0.076	0.078	0.081	0.082	0.083	0.082	0.084	0.081	0.073	0.075	0.074	0.075	0.074	0.078	0.078	0.087
SACRAMENTO VALLEY	0.181	0.174	0.163	0.162	0.173	0.173	0.168	0.171	0.166	0.162	0.153	0.158	0.159	0.148	0.149	0.154	0.141	0.161	0.154	0.153
SALTON SEA	0.216	0.209	0.194	0.202	0.204	0.197	0.185	0.182	0.180	0.181	0.175	0.168	0.159	0.154	0.163	0.155	0.156	0.153	0.147	0.149
SAN DIEGO	0.228	0.203	0.188	0.197	0.188	0.179	0.179	0.179	0.186	0.180	0.172	0.164	0.150	0.147	0.148	0.142	0.132	0.134	0.134	0.132
SAN FRANCISCO BAY AREA	0.162	0.154	0.153	0.164	0.172	0.155	0.149	0.147	0.148	0.136	0.129	0.130	0.126	0.118	0.135	0.151	0.149	0.151	0.144	0.143
SAN JOAQUIN VALLEY	0.183	0.186	0.184	0.164	0.162	0.172	0.172	0.169	0.170	0.164	0.167	0.162	0.162	0.155	0.163	0.164	0.167	0.162	0.159	0.158
SOUTH CENTRAL COAST	0.200	0.198	0.195	0.188	0.181	0.177	0.172	0.176	0.173	0.172	0.164	0.159	0.157	0.147	0.162	0.161	0.153	0.143	0.135	0.132
SOUTH COAST	0.401	0.385	0.365	0.354	0.375	0.360	0.344	0.319	0.320	0.310	0.304	0.286	0.297	0.279	0.249	0.233	0.229	0.224	0.211	0.213

Table B-1

National 1-Hour Design Value (ppm)

AIR BASIN	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
GREAT BASIN VALLEYS	0.080	0.080	0.090	0.090	0.090	0.100	0.100	0.100	0.100	0.100	0.090	0.120	0.120	0.120	0.100	0.100	0.091	0.090	0.089	0.090
LAKE COUNTY	0.080	0.080	0.080	0.080	0.070	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080
LAKE TAHOE	0.080	0.090	0.080	0.080	0.080	0.080	0.090	0.090	0.090	0.090	0.090	0.090	0.070	0.081	0.086	0.083	0.083	0.081	0.081	0.086
MOJAVE DESERT	0.290	0.220	0.210	0.220	0.220	0.230	0.230	0.230	0.210	0.220	0.230	0.230	0.200	0.190	0.188	0.182	0.175	0.167	0.166	0.164
MOUNTAIN COUNTIES	0.090					0.080	0.116	0.140	0.140	0.140	0.110	0.120	0.120	0.124	0.124	0.129	0.130	0.143	0.144	0.143
NORTH CENTRAL COAST	0.120	0.120	0.110	0.100	0.100	0.100	0.134	0.134	0.139	0.120	0.110	0.110	0.110	0.110	0.104	0.114	0.114	0.114	0.109	0.107
NORTH COAST	0.080	0.080	0.080	0.070	0.070	0.070	0.080	0.080	0.059	0.060	0.060	0.080	0.090	0.090	0.090	0.090	0.090	0.110	0.110	0.110
NORTHEAST PLATEAU	0.060	0.070	0.070	0.070	0.070	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.070	0.070	0.070	0.070	0.070	0.075	0.075	0.091
SACRAMENTO VALLEY	0.170	0.160	0.160	0.180	0.180	0.180	0.160	0.160	0.160	0.160	0.150	0.150	0.150	0.143	0.145	0.145	0.133	0.148	0.148	0.148
SALTON SEA	0.200	0.200	0.190	0.190	0.190	0.190	0.180	0.180	0.180	0.180	0.180	0.170	0.170	0.152	0.180	0.180	0.160	0.155	0.143	0.157
SAN DIEGO	0.290	0.210	0.200	0.200	0.210	0.190	0.180	0.180	0.190	0.190	0.170	0.170	0.154	0.150	0.146	0.141	0.138	0.135	0.135	0.131
SAN FRANCISCO BAY AREA	0.190	0.180	0.160	0.160	0.160	0.150	0.140	0.140	0.140	0.130	0.130	0.120	0.120	0.121	0.138	0.138	0.138	0.138	0.139	0.139
SAN JOAQUIN VALLEY	0.180	0.170	0.170	0.160	0.160	0.170	0.170	0.170	0.170	0.160	0.160	0.160	0.160	0.160	0.165	0.165	0.164	0.161	0.161	0.161
SOUTH CENTRAL COAST	0.190	0.200	0.220	0.210	0.190	0.180	0.180	0.180	0.170	0.170	0.170	0.150	0.150	0.146	0.157	0.158	0.152	0.144	0.134	0.132
SOUTH COAST	0.420	0.390	0.360	0.360	0.360	0.350	0.350	0.340	0.330	0.330	0.310	0.300	0.300	0.280	0.250	0.231	0.215	0.217	0.211	0.211

Table B-2

Ozone

National 8-Hour Design Value (ppm)

AIR BASIN	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
GREAT BASIN VALLEYS	0.067	0.072	0.076	0.078	0.079	0.082	0.084	0.086	0.081	0.081	0.076	0.081	0.078	0.082	0.079	0.079	0.077	0.079	0.079	0.080
LAKE COUNTY	0.061	0.063	0.059	0.063	0.059	0.064	0.065	0.065	0.058	0.054	0.055	0.055	0.057	0.059	0.061	0.060	0.058	0.057	0.061	0.062
LAKE TAHOE	0.071	0.070	0.069	0.067	0.068	0.069	0.071	0.074	0.076	0.075	0.076	0.075	0.056	0.061	0.070	0.071	0.068	0.069	0.069	0.074
MOJAVE DESERT	0.240	0.145	0.141	0.132	0.150	0.168	0.163	0.165	0.153	0.151	0.151	0.147	0.139	0.138	0.137	0.131	0.124	0.127	0.118	0.110
MOUNTAIN COUNTIES	0.076					0.073	0.093	0.108	0.103	0.094	0.092	0.098	0.096	0.099	0.099	0.103	0.099	0.103	0.103	0.107
NORTH CENTRAL COAST	0.087	0.083	0.081	0.077	0.081	0.078	0.103	0.095	0.090	0.084	0.083	0.084	0.083	0.081	0.081	0.085	0.084	0.086	0.082	0.082
NORTH COAST	0.072	0.055	0.053	0.051	0.050	0.052	0.056	0.066	0.042	0.053	0.051	0.063	0.065	0.066	0.069	0.069	0.072	0.077	0.082	0.076
NORTHEAST PLATEAU	0.051	0.056	0.056	0.059	0.061	0.064	0.069	0.069	0.069	0.067	0.059	0.057	0.051	0.058	0.057	0.059	0.058	0.061	0.062	0.064
SACRAMENTO VALLEY	0.115	0.112	0.114	0.115	0.118	0.118	0.114	0.114	0.114	0.107	0.105	0.105	0.110	0.104	0.106	0.106	0.097	0.097	0.101	0.105
SALTON SEA	0.149	0.144	0.134	0.134	0.134	0.135	0.131	0.130	0.129	0.126	0.125	0.121	0.118	0.113	0.110	0.111	0.107	0.107	0.100	0.099
SAN DIEGO	0.141	0.137	0.130	0.126	0.132	0.125	0.124	0.121	0.125	0.129	0.125	0.118	0.112	0.109	0.108	0.104	0.099	0.102	0.099	0.100
SAN FRANCISCO BAY AREA	0.103	0.094	0.095	0.100	0.103	0.097	0.092	0.092	0.097	0.088	0.084	0.082	0.081	0.082	0.087	0.093	0.090	0.089	0.086	0.087
SAN JOAQUIN VALLEY	0.127	0.123	0.116	0.114	0.111	0.117	0.118	0.121	0.120	0.119	0.118	0.115	0.112	0.111	0.119	0.119	0.115	0.115	0.113	0.111
SOUTH CENTRAL COAST	0.146	0.144	0.143	0.137	0.132	0.131	0.129	0.131	0.132	0.130	0.127	0.118	0.115	0.112	0.117	0.119	0.115	0.112	0.106	0.105
SOUTH COAST	0.251	0.233	0.229	0.225	0.226	0.222	0.217	0.205	0.192	0.186	0.182	0.180	0.177	0.171	0.165	0.161	0.148	0.154	0.147	0.146

Table B-3

Maximum 1-Hour Concentration (ppm)

AIR BASIN	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
GREAT BASIN VALLEYS	0.080	0.090	0.090	0.090	0.100	0.100	0.100	0.100	0.080	0.100	0.090	0.150	0.090	0.120	0.110	0.095	0.092	0.092	0.094	0.090
LAKE COUNTY	0.080	0.080	0.070	0.080	0.080	0.080	0.090	0.070	0.060	0.090	0.080	0.080	0.080	0.090	0.070	0.090	0.080	0.080	0.090	0.080
LAKE TAHOE	0.100	0.090	0.080	0.080	0.100	0.090	0.090	0.090	0.100	0.090	0.090	0.100	0.090	0.086	0.092	0.083	0.095	0.081	0.095	0.089
MOJAVE DESERT	0.330	0.200	0.230	0.230	0.210	0.260	0.220	0.270	0.220	0.270	0.240	0.230	0.200	0.188	0.240	0.175	0.187	0.202	0.137	0.163
MOUNTAIN COUNTIES	0.090					0.090	0.145	0.160	0.130	0.150	0.110	0.130	0.120	0.130	0.146	0.138	0.145	0.163	0.165	0.134
NORTH CENTRAL COAST	0.140	0.110	0.110	0.100	0.110	0.100	0.146	0.127	0.140	0.120	0.140	0.110	0.110	0.101	0.138	0.120	0.112	0.124	0.107	0.098
NORTH COAST	0.090	0.080	0.070	0.070	0.070	0.070	0.090	0.090	0.050	0.070	0.060	0.090	0.090	0.100	0.100	0.080	0.100	0.130	0.100	0.090
NORTHEAST PLATEAU	0.060	0.070	0.070	0.080	0.080	0.080	0.090	0.080	0.080	0.080	0.050	0.080	0.070	0.080	0.070	0.070	0.082	0.078	0.070	0.143
SACRAMENTO VALLEY	0.180	0.160	0.170	0.210	0.200	0.170	0.180	0.180	0.170	0.150	0.190	0.170	0.150	0.145	0.156	0.157	0.143	0.160	0.160	0.138
SALTON SEA	0.190	0.190	0.190	0.200	0.240	0.180	0.170	0.200	0.190	0.170	0.180	0.170	0.210	0.180	0.232	0.180	0.160	0.236	0.171	0.169
SAN DIEGO	0.290	0.230	0.280	0.280	0.220	0.190	0.290	0.250	0.250	0.200	0.210	0.170	0.187	0.147	0.162	0.138	0.136	0.164	0.124	0.124
SAN FRANCISCO BAY AREA	0.180	0.150	0.200	0.170	0.160	0.140	0.170	0.150	0.140	0.130	0.140	0.130	0.130	0.130	0.155	0.138	0.114	0.147	0.156	0.152
SAN JOAQUIN VALLEY	0.180	0.180	0.170	0.170	0.160	0.180	0.200	0.190	0.180	0.170	0.180	0.160	0.160	0.175	0.173	0.165	0.147	0.169	0.155	0.165
SOUTH CENTRAL COAST	0.240	0.230	0.230	0.190	0.230	0.180	0.185	0.180	0.230	0.170	0.170	0.150	0.146	0.164	0.169	0.158	0.137	0.174	0.135	0.128
SOUTH COAST	0.390	0.400	0.390	0.340	0.390	0.350	0.330	0.350	0.340	0.330	0.320	0.300	0.280	0.300	0.256	0.239	0.205	0.244	0.174	0.184

Table B-4

Ozone

Maximum 8-Hour Concentration (ppm)

AIR BASIN	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
GREAT BASIN VALLEYS	0.073	0.082	0.087	0.087	0.090	0.093	0.091	0.098	0.077	0.091	0.073	0.103	0.077	0.092	0.101	0.090	0.080	0.085	0.089	0.080
LAKE COUNTY	0.060	0.073	0.061	0.077	0.070	0.080	0.080	0.061	0.053	0.063	0.066	0.057	0.072	0.075	0.063	0.070	0.065	0.076	0.072	0.073
LAKE TAHOE	0.082	0.080	0.071	0.072	0.086	0.080	0.082	0.085	0.085	0.080	0.081	0.082	0.071	0.079	0.089	0.073	0.071	0.077	0.079	0.077
MOJAVE DESERT	0.295	0.145	0.182	0.158	0.167	0.225	0.161	0.167	0.161	0.198	0.173	0.165	0.147	0.155	0.170	0.146	0.133	0.144	0.122	0.132
MOUNTAIN COUNTIES	0.087					0.078	0.111	0.138	0.110	0.115	0.102	0.112	0.111	0.108	0.113	0.113	0.112	0.127	0.118	0.113
NORTH CENTRAL COAST	0.113	0.077	0.088	0.083	0.091	0.083	0.113	0.096	0.100	0.095	0.108	0.090	0.087	0.092	0.102	0.101	0.091	0.097	0.085	0.084
NORTH COAST	0.086	0.065	0.057	0.062	0.056	0.062	0.076	0.076	0.042	0.060	0.051	0.072	0.073	0.080	0.090	0.071	0.091	0.106	0.087	0.077
NORTHEAST PLATEAU	0.057	0.066	0.062	0.066	0.075	0.070	0.081	0.071	0.076	0.076	0.046	0.073	0.070	0.068	0.062	0.063	0.074	0.071	0.067	0.080
SACRAMENTO VALLEY	0.142	0.133	0.125	0.138	0.161	0.125	0.127	0.130	0.133	0.127	0.140	0.122	0.120	0.121	0.128	0.126	0.107	0.137	0.129	0.108
SALTON SEA	0.151	0.142	0.150	0.165	0.160	0.142	0.141	0.137	0.160	0.130	0.148	0.128	0.128	0.130	0.132	0.125	0.120	0.136	0.110	0.113
SAN DIEGO	0.206	0.162	0.176	0.207	0.168	0.143	0.196	0.156	0.193	0.145	0.145	0.133	0.154	0.121	0.122	0.117	0.112	0.141	0.100	0.106
SAN FRANCISCO BAY AREA	0.123	0.108	0.150	0.124	0.127	0.106	0.116	0.101	0.102	0.105	0.108	0.101	0.112	0.097	0.115	0.112	0.084	0.111	0.122	0.114
SAN JOAQUIN VALLEY	0.148	0.133	0.122	0.136	0.131	0.135	0.150	0.127	0.136	0.123	0.130	0.121	0.125	0.129	0.134	0.137	0.127	0.136	0.123	0.131
SOUTH CENTRAL COAST	0.170	0.168	0.165	0.158	0.156	0.145	0.153	0.142	0.176	0.143	0.140	0.125	0.129	0.132	0.144	0.127	0.114	0.151	0.112	0.108
SOUTH COAST	0.282	0.265	0.258	0.248	0.288	0.251	0.210	0.258	0.252	0.193	0.203	0.218	0.195	0.208	0.203	0.173	0.148	0.206	0.142	0.149

Table B-5

Days Above State Standard

AIR BASIN	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
GREAT BASIN VALLEYS	0	0	0	0	1	5	4	3	0	2	0	5	0	4	2	1	0	0	0	0
LAKE COUNTY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LAKE TAHOE	2	0	0	0	1	0	0	0	2	0	0	1	0	0	0	0	1	0	1	0
MOJAVE DESERT	159	120	120	131	147	156	158	152	158	136	135	150	135	137	119	108	101	77	83	86
MOUNTAIN COUNTIES	0					0	27	51	39	22	23	54	35	57	49	65	29	52	66	51
NORTH CENTRAL COAST	8	2	7	6	12	1	37	14	10	11	12	9	12	6	8	16	1	10	3	3
NORTH COAST	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	7	4	0
NORTHEAST PLATEAU	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
SACRAMENTO VALLEY	78	66	62	64	59	66	94	98	68	50	68	74	34	60	50	58	25	62	59	42
SALTON SEA	141	96	96	100	96	80	85	107	119	83	86	100	113	126	124	98	91	73	88	54
SAN DIEGO	192	120	125	146	148	131	127	160	159	139	106	97	90	79	96	51	43	54	27	24
SAN FRANCISCO BAY AREA	51	36	53	55	45	39	46	41	22	14	23	23	19	13	28	34	8	29	20	12
SAN JOAQUIN VALLEY	130	113	105	135	149	147	156	156	148	131	133	127	125	118	124	120	110	90	123	114
SOUTH CENTRAL COAST	151	145	126	133	137	150	126	138	117	105	112	75	63	90	95	82	59	54	33	38
SOUTH COAST	233	198	192	209	207	217	196	216	211	185	184	190	185	165	153	141	144	107	111	115

Table B-6

Ozone

Days Above National 1-Hour Standard

AIR BASIN	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
GREAT BASIN VALLEYS	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0
LAKE COUNTY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LAKE TAHOE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MOJAVE DESERT	122	38	66	66	93	105	82	108	93	76	70	77	69	77	60	39	22	26	4	11
MOUNTAIN COUNTIES	0					0	3	7	2	2	0	1	0	2	3	7	2	8	7	4
NORTH CENTRAL COAST	2	0	0	0	0	0	5	1	1	0	1	0	0	0	1	0	0	0	0	0
NORTH COAST	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
NORTHEAST PLATEAU	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
SACRAMENTO VALLEY	22	17	15	23	19	24	24	35	8	16	14	14	7	9	11	9	3	14	7	5
SALTON SEA	63	38	50	40	29	31	40	35	38	27	27	31	36	20	33	21	13	13	25	5
SAN DIEGO	78	47	61	51	50	42	40	45	56	39	27	19	14	9	12	2	1	9	0	0
SAN FRANCISCO BAY AREA	8	5	21	22	9	5	14	5	4	2	2	2	3	2	11	8	0	8	3	3
SAN JOAQUIN VALLEY	69	43	41	61	53	59	65	74	54	45	51	29	43	43	44	56	16	39	28	30
SOUTH CENTRAL COAST	85	72	58	46	44	60	31	56	48	20	35	12	14	17	25	19	3	6	2	2
SOUTH COAST	187	151	153	175	158	167	161	178	157	131	130	142	124	118	98	85	64	60	39	33

Table B-7

Days Above National 8-Hour Standard

AIR BASIN	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
GREAT BASIN VALLEYS	0	0	1	2	2	13	2	6	0	3	0	9	0	6	2	1	0	1	1	0
LAKE COUNTY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LAKE TAHOE	0	0	0	0	1	0	0	1	2	0	0	0	0	0	1	0	0	0	0	0
MOJAVE DESERT	148	104	105	109	129	146	144	142	137	120	122	134	124	129	109	91	78	68	73	72
MOUNTAIN COUNTIES	1					0	22	43	38	22	33	47	34	49	47	59	28	54	65	56
NORTH CENTRAL COAST	4	0	3	0	5	0	26	6	3	5	3	4	4	1	3	9	1	6	1	0
NORTH COAST	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	5	2	0
NORTHEAST PLATEAU	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SACRAMENTO VALLEY	63	46	44	46	42	50	73	68	37	44	60	56	22	48	40	44	15	60	43	35
SALTON SEA	110	80	77	79	70	62	72	70	90	56	65	75	80	75	79	62	63	40	35	33
SAN DIEGO	133	83	101	98	109	81	99	119	122	96	67	66	58	46	48	31	16	35	16	16
SAN FRANCISCO BAY AREA	23	13	26	32	17	13	29	20	13	7	6	6	5	4	18	14	0	16	9	4
SAN JOAQUIN VALLEY	96	108	100	120	127	134	148	140	133	104	121	119	104	108	109	114	95	84	117	103
SOUTH CENTRAL COAST	135	124	109	109	111	122	91	113	97	76	94	63	53	65	70	68	46	41	24	30
SOUTH COAST	199	166	169	190	181	191	179	194	181	161	160	173	161	148	120	115	118	93	93	94

Table B-8

PM_{10}

Maximum 24-Hour Concentration (ug/m^3)

AIR BASIN	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
GREAT BASIN VALLEYS								394	1861	866	181	526	981	388	692	397	402	1116	514	3059
LAKE COUNTY								28	29	30	31	22	30	21	30	26	18	35	43	22
LAKE TAHOE								95	73	84	78	85	92	78	71	72	55	59	41	50
MOJAVE DESERT								150	191	462	780	242	79	140	235	138	130	165	109	90
MOUNTAIN COUNTIES								180	144	209	350	120	130	115	118	114	138	92	125	98
NORTH CENTRAL COAST								71	58	57	55	45	102	106	152	115	113	76	103	74
NORTH COAST								125	92	266	78	58	54	77	68	87	66	50	100	51
NORTHEAST PLATEAU								92	59	63	60	74	60	101	78	188	97	66	100	80
SACRAMENTO VALLEY								115	139	153	136	111	110	154	145	98	126	130	179	86
SALTON SEA*								368	712	520	340	175	175	258	229	359	532	176	227	268
SAN DIEGO								81	90	115	81	67	159	129	121	93	125	89	121	139
SAN FRANCISCO BAY AREA								146	150	173	155	112	101	97	74	76	95	92	114	76
SAN JOAQUIN VALLEY								244	250	439	279	183	239	190	279	153	199	160	183	145
SOUTH CENTRAL COAST								132	119	133	119	135	141	139	129	98	321	110	90	113
SOUTH COAST								289	271	475	179	649	231	161	219	162	227	116	183	139

Table B-9

** Salton Sea PM_{10} statistics exclude data from the Calexico - East site because data from this site do not represent widespread exposure.*

Maximum Annual Geometric Mean (ug/m^3)

AIR BASIN	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
GREAT BASIN VALLEYS								27.9	24.1	29.0	17.9	28.9	25.7	23.4	21.0	20.1	20.0	19.6	13.9	17.4
LAKE COUNTY									12.0		11.0	11.1	9.9	10.1	9.6	9.1	7.7			9.6
LAKE TAHOE										26.0	24.6			23.5	19.3		19.6	19.6	17.4	17.6
MOJAVE DESERT								33.6	38.4	38.6	36.6	35.6	30.5	24.7		25.6	25.2	14.2	27.9	19.3
MOUNTAIN COUNTIES										28.7	34.1	21.1	15.7	28.7	21.7	18.8	25.0	22.5	22.5	16.1
NORTH CENTRAL COAST								20.8	22.2	22.3			15.6	27.6	29.5	27.7	31.7	25.9	27.6	23.5
NORTH COAST								31.0	28.2	24.4	22.5	20.1	20.5	21.1	23.4	21.6	20.7	19.6	21.2	19.8
NORTHEAST PLATEAU								21.9	21.7			20.9		20.3	12.2	10.7			22.2	17.6
SACRAMENTO VALLEY								36.7	35.5	36.0	37.7	31.4	28.8	30.0	26.3	25.5	25.3	22.8	30.3	24.7
SALTON SEA*								48.5	61.1	64.9	59.8	43.7	47.2	45.3	59.6	64.7	70.2	58.6	66.4	73.0
SAN DIEGO								36.8	41.3	33.4	38.0		40.0	45.2	39.8	28.4	41.9	38.6	47.5	31.6
SAN FRANCISCO BAY AREA								34.6	34.4	33.0	31.5	29.5	25.1	24.8	22.1	22.1	23.7	22.5	25.4	23.7
SAN JOAQUIN VALLEY								60.0	57.3	68.5	58.1	56.6	45.3	44.3	48.9	47.6	42.3	32.1	50.3	45.4
SOUTH CENTRAL COAST								36.2	36.2	34.5	34.3	28.5	25.5	26.0	23.3	26.2	28.4	23.8	28.1	26.2
SOUTH COAST								81.8	81.3	66.9	65.5	62.4	58.0	56.0	51.8	52.0	56.3	43.3	64.9	54.6

Table B-10

** Salton Sea PM_{10} statistics exclude data from the Calexico - East site because data from this site do not represent widespread exposure.*

PM_{10}

Calculated Days Above State 24-Hour Standard

AIR BASIN	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
GREAT BASIN VALLEYS								78	72	78	48	69	60	60	36	21	36	78	19	48
LAKE COUNTY								0	0	0	0	0	0	0	0	0	0	0	0	0
LAKE TAHOE								60	30	60	36	30	30	42	18	24	12	12	0	0
MOJAVE DESERT								90	147	132	66	81	60	84	18	24	18	18	30	36
MOUNTAIN COUNTIES								78	66	95	90	84	90	84	30	18	66	24	36	24
NORTH CENTRAL COAST								18	12	12	6	0	48	30	72	72	72	24	36	24
NORTH COAST								69	42	30	30	6	12	24	12	9	6	0	30	6
NORTHEAST PLATEAU								24	30	30	12	24	6	18	54	12	18	12	54	48
SACRAMENTO VALLEY								120	84	93	114	96	60	36	66	42	24	60	66	45
SALTON SEA*								198	222	246	222	138	150	192	210	246	294	234	264	312
SAN DIEGO								87	111	42	81	36	132	129	114	90	126	108	126	111
SAN FRANCISCO BAY AREA								78	84	72	90	78	48	42	24	12	18	18	36	42
SAN JOAQUIN VALLEY								246	234	267	225	216	180	156	186	204	108	114	174	180
SOUTH CENTRAL COAST								114	132	66	96	54	114	30	48	78	48	48	36	84
SOUTH COAST								306	300	276	246	234	252	246	228	255	246	186	258	246

Table B-11

** Salton Sea PM_{10} statistics exclude data from the Calexico - East site because data from this site do not represent widespread exposure.*

Calculated Days Above National 24-Hour Standard

AIR BASIN	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
GREAT BASIN VALLEYS								12	24	12	6	18	9	6	12	6	14	16	8	13
LAKE COUNTY								0	0	0	0	0	0	0	0	0	0	0	0	0
LAKE TAHOE								0	0	0	0	0	0	0	0	0	0	0	0	0
MOJAVE DESERT								0	6	12	18	6	0	0	6	0	0	6	0	0
MOUNTAIN COUNTIES								6	0	9	12	0	0	0	0	0	0	0	0	0
NORTH CENTRAL COAST								0	0	0	0	0	0	0	0	0	0	0	0	0
NORTH COAST								0	0	6	0	0	0	0	0	0	0	0	0	0
NORTHEAST PLATEAU								0	0	0	0	0	0	0	0	6	0	0	0	0
SACRAMENTO VALLEY								0	0	0	0	0	0	0	0	0	0	0	6	0
SALTON SEA*								6	24	24	18	6	12	18	12	30	24	12	30	33
SAN DIEGO								0	0	0	0	0	6	0	0	0	0	0	0	0
SAN FRANCISCO BAY AREA								0	0	6	3	0	0	0	0	0	0	0	0	0
SAN JOAQUIN VALLEY								27	36	30	24	6	18	12	9	0	6	6	9	0
SOUTH CENTRAL COAST								0	0	0	0	0	0	0	0	0	6	0	0	0
SOUTH COAST								30	33	18	12	12	18	6	24	6	6	0	6	0

Table B-12

** Salton Sea PM_{10} statistics exclude data from the Calexico - East site because data from this site do not represent widespread exposure.*

Carbon Monoxide

Peak 8-Hour Indicator (ppm)

AIR BASIN	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
GREAT BASIN VALLEYS	8.5	8.6	7.7		7.3	7.2	7.0	5.9	5.8	5.7	5.6	3.5	5.0	4.7	4.6	4.0	4.0	3.9		2.9
LAKE COUNTY	3.4								1.9	2.9	2.9									
LAKE TAHOE	15.0	15.6	16.1	16.1	16.4	15.5	14.9	13.2	12.6	11.9	11.1	10.2	8.7	8.3	7.8	7.0	5.6	5.0	2.3	2.1
MOJAVE DESERT	7.3	7.6	5.4	5.4	5.6	5.2	4.9	4.6	5.5	7.7	7.6	6.5	6.2	6.1	5.8	7.4	4.8	4.4	4.4	4.6
MOUNTAIN COUNTIES	15.7					4.5	4.5		4.1	4.3		2.9	2.9	2.8	2.8	2.7	2.4	5.1	5.4	5.7
NORTH CENTRAL COAST	3.8	2.9	2.7	2.6	2.4	2.6	2.5	2.5	2.5	2.5	2.5	2.5	2.4	2.3	2.2	2.1	2.0	2.0	2.0	1.6
NORTH COAST					5.2	5.2	3.4		4.6	4.6			2.4		3.2	3.4	3.3	3.1	3.6	3.4
NORTHEAST PLATEAU																				
SACRAMENTO VALLEY	12.9	13.4	13.2	13.0	13.2	14.6	14.4	13.4	14.0	14.7	14.8	12.9	10.7	9.6	9.3	8.5	7.7	7.3	7.0	7.0
SALTON SEA	3.6	3.6	3.1	2.5	2.5	2.6	2.6	2.5	2.4	2.3	2.3	2.2	2.1	17.4	18.8	17.8	17.4	15.4	15.5	14.8
SAN DIEGO	12.1	9.5	9.3	9.4	10.6	10.2	10.4	10.2	10.3	10.2	10.0	8.6	7.8	7.7	7.3	7.3	6.3	6.3	5.6	5.3
SAN FRANCISCO BAY AREA	14.8	14.0	11.9	11.9	13.9	14.0	13.4	10.7	11.8	12.6	12.4	11.1	9.3	8.1	7.8	7.4	6.5	6.7	6.5	7.1
SAN JOAQUIN VALLEY	17.2	15.7	13.9	13.6	13.4	13.9	13.9	14.1	13.7	13.9	13.2	11.5	10.0	10.0	10.9	9.9	9.0	8.3	8.5	8.3
SOUTH CENTRAL COAST	12.4	12.0	11.3	9.6	10.2	9.9	10.1	9.0	8.8	8.2	7.5	6.4	5.5	5.9	6.0	5.8	5.0	4.8	4.5	4.7
SOUTH COAST	24.1	24.1	21.0	20.2	21.1	21.1	21.7	21.9	22.5	21.9	19.0	17.7	16.5	16.7	15.6	16.1	15.4	15.4	13.7	12.6

Table B-13

Carbon Monoxide

Maximum 1-Hour Concentration (ppm)

AIR BASIN	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
GREAT BASIN VALLEYS	13.0	18.0	14.0	13.0	16.0	11.0	9.0	13.0	12.0	10.0	11.0	11.0	13.0	9.0	10.0	6.0	8.2	6.7		4.2
LAKE COUNTY	3.0								3.0	6.0	7.0									
LAKE TAHOE	25.0	27.0	30.0	23.0	23.0	20.0	19.0	19.0	17.0	18.0	14.0	15.0	13.0	11.6	9.5	10.4	7.7	7.5	3.2	16.1
MOJAVE DESERT	9.0	10.0	13.0	10.0	12.0	9.0	12.0	11.0	13.0	11.0	10.0	9.0	8.0	9.1	7.5	8.4	5.9	5.4	10.3	6.0
MOUNTAIN COUNTIES	30.0					6.0	3.0		6.0	5.0	1.0	6.2	10.0	9.3	9.3	4.5	6.6	6.7	4.1	5.0
NORTH CENTRAL COAST	4.0	6.0	3.0	5.0	6.0	4.0	5.0	6.0	5.0	5.0	4.0	4.0	4.0	4.6	3.2	5.5	4.4	3.8	3.8	3.5
NORTH COAST				6.0	8.0	6.0	4.0	1.0	10.0	9.0		1.0	6.0		5.4	4.8	7.4	4.8	5.2	3.1
NORTHEAST PLATEAU							12.0	4.0												
SACRAMENTO VALLEY	17.0	17.0	19.0	18.0	17.0	20.0	15.0	17.0	18.0	17.0	15.0	14.0	12.0	10.8	9.8	8.7	9.5	7.9	7.7	10.0
SALTON SEA	6.0	5.0	7.0	4.0	5.0	5.0	5.0	4.0	6.0	5.0	5.0	5.0	6.0	30.6	32.0	27.0	24.0	23.5	22.9	19.9
SAN DIEGO	15.0	15.0	16.0	16.0	17.0	16.0	14.0	17.0	17.0	18.0	14.0	14.0	11.4	11.0	9.9	12.4	9.3	10.2	9.9	9.3
SAN FRANCISCO BAY AREA	16.0	18.0	17.0	20.0	21.0	20.0	17.0	15.0	19.0	18.0	15.0	12.0	14.0	12.0	10.1	8.8	10.7	8.7	9.0	9.8
SAN JOAQUIN VALLEY	18.0	18.0	17.0	24.0	18.0	21.0	16.0	19.0	23.0	17.0	19.0	13.0	13.0	15.0	12.0	11.0	9.9	10.3	11.9	10.1
SOUTH CENTRAL COAST	15.0	14.0	16.0	16.0	17.0	18.0	14.0	15.0	11.0	11.0	9.0	12.0	9.0	10.7	8.9	12.6	8.2	8.5	8.2	6.2
SOUTH COAST	31.0	27.0	31.0	29.0	33.0	27.0	26.0	32.0	31.0	24.0	30.0	28.0	21.0	24.9	16.8	22.5	19.2	17.0	19.0	13.8

Table B-14

Maximum 8-Hour Concentration (ppm)

AIR BASIN	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
GREAT BASIN VALLEYS	6.4	10.8	7.9	7.3	7.4	6.0	6.3	5.0	5.4	4.4	5.0	4.4	4.5	5.4	5.4	3.0	3.4	3.0		2.5
LAKE COUNTY	2.1								2.2	2.6	3.1									
LAKE TAHOE	15.4	18.3	17.4	14.8	16.3	12.5	13.0	12.5	11.3	10.1	9.2	9.9	7.5	7.1	6.3	5.1	3.8	4.3	2.4	2.8
MOJAVE DESERT	7.4	5.0	6.3	4.9	5.7	4.6	4.0	5.9	7.1	8.3	7.1	5.4	5.9	5.6	5.0	7.5	4.0	3.6	5.4	4.3
MOUNTAIN COUNTIES	16.0					4.2	2.3		4.6	3.5	0.1	4.5	5.4	5.4	3.4	2.6	1.9	5.5	3.0	1.6
NORTH CENTRAL COAST	2.9	2.6	2.1	3.0	3.3	2.3	2.3	2.4	2.4	2.5	2.5	2.9	2.7	2.1	2.1	2.6	1.8	2.2	1.8	1.4
NORTH COAST				4.1	5.5	3.1	3.0	1.0	4.5	3.5		0.6	2.4		3.2	2.7	3.2	3.5	3.7	2.4
NORTHEAST PLATEAU							10.4	1.8												
SACRAMENTO VALLEY	13.5	15.1	14.1	12.4	13.3	13.9	10.0	12.3	15.9	14.0	12.3	8.6	9.4	8.4	7.4	7.2	7.2	7.1	6.6	6.3
SALTON SEA	3.8	2.6	2.8	2.1	2.6	3.6	2.9	2.1	2.9	2.3	2.5	2.4	2.0	13.1	22.9	22.1	17.8	14.4	17.9	15.5
SAN DIEGO	11.3	10.3	12.1	8.5	13.0	10.4	9.4	10.3	10.5	9.1	7.9	7.9	7.5	7.5	6.3	7.1	5.4	4.8	6.0	5.9
SAN FRANCISCO BAY AREA	11.0	14.5	10.6	12.1	16.1	12.6	10.0	12.8	12.0	11.0	11.0	7.8	7.9	8.8	5.8	7.0	6.1	6.3	6.3	7.0
SAN JOAQUIN VALLEY	13.6	14.8	14.3	15.7	11.0	16.3	12.9	16.5	13.4	11.5	11.4	8.3	9.3	8.9	9.1	7.7	7.5	8.0	7.8	6.6
SOUTH CENTRAL COAST	9.2	8.7	9.0	10.0	10.5	8.6	7.5	7.4	7.4	5.8	6.4	5.9	4.8	6.5	5.8	4.9	4.0	4.6	4.2	4.3
SOUTH COAST	25.5	21.3	20.9	19.7	27.7	19.7	19.6	27.5	21.8	16.8	17.4	18.8	14.6	18.2	13.8	17.5	17.1	13.3	11.2	10.1

Table B-15

Carbon Monoxide

Days Above State 8-Hour Standard

AIR BASIN	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
GREAT BASIN VALLEYS	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
LAKE COUNTY	0								0	0	0									
LAKE TAHOE	173	161	139	139	121	96	87	80	67	39	24	13	12	9	1	0	0	0	0	0
MOJAVE DESERT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MOUNTAIN COUNTIES	40					0	0		0	0	0	0	0	0	0	0	0	0	0	0
NORTH CENTRAL COAST	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NORTH COAST				0	0	0	0	0	0	0		0	0		0	0	0	0	0	0
NORTHEAST PLATEAU							1	0												
SACRAMENTO VALLEY	7	11	6	6	12	13	5	12	22	14	9	0	2	0	0	0	0	0	0	0
SALTON SEA	0	0	0	0	0	0	0	0	0	0	0	0	0	10	17	11	15	12	13	7
SAN DIEGO	1	1	1	0	5	2	1	5	6	1	0	0	0	0	0	0	0	0	0	0
SAN FRANCISCO BAY AREA	6	15	4	8	24	8	2	4	10	4	5	0	0	0	0	0	0	0	0	0
SAN JOAQUIN VALLEY	12	9	12	7	7	13	4	5	24	10	3	0	2	0	1	0	0	0	0	0
SOUTH CENTRAL COAST	1	0	0	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOUTH COAST	89	79	67	79	64	58	50	73	71	50	51	39	29	27	17	26	18	13	11	6

Table B-16

Days Above National 8-Hour Standard

AIR BASIN	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
GREAT BASIN VALLEYS	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
LAKE COUNTY	0								0	0	0									
LAKE TAHOE	28	40	24	28	28	10	12	9	5	5	0	1	0	0	0	0	0	0	0	0
MOJAVE DESERT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MOUNTAIN COUNTIES	41					0	0		0	0	0	0	0	0	0	0	0	0	0	0
NORTH CENTRAL COAST	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NORTH COAST				0	0	0	0	0	0	0		0	0		0	0	0	0	0	0
NORTHEAST PLATEAU							1	0												
SACRAMENTO VALLEY	7	9	4	5	12	12	3	9	22	12	6	0	0	0	0	0	0	0	0	0
SALTON SEA	0	0	0	0	0	0	0	0	0	0	0	0	0	9	15	9	10	8	11	6
SAN DIEGO	1	1	1	0	3	1	0	2	5	0	0	0	0	0	0	0	0	0	0	0
SAN FRANCISCO BAY AREA	4	12	4	7	21	8	1	4	9	2	4	0	0	0	0	0	0	0	0	0
SAN JOAQUIN VALLEY	10	8	9	6	7	11	4	6	18	9	3	0	0	0	0	0	0	0	0	0
SOUTH CENTRAL COAST	0	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOUTH COAST	78	68	57	66	54	49	40	65	67	42	41	34	19	19	14	19	13	10	7	3

Table B-17

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Nitrogen Dioxide

Peak 1-Hour Indicator (ppm)

AIR BASIN	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
GREAT BASIN VALLEYS																				
LAKE COUNTY	0.048																			
LAKE TAHOE	0.074	0.073	0.085	0.079	0.079	0.073	0.076	0.073	0.074	0.078	0.076	0.078	0.062	0.061	0.062	0.062	0.061	0.060	0.057	0.058
MOJAVE DESERT	0.144	0.141	0.147	0.138	0.136	0.130	0.134	0.112	0.100	0.181	0.259	0.277	0.289	0.202	0.124	0.119	0.097	0.102	0.105	0.106
MOUNTAIN COUNTIES						0.046	0.046													
NORTH CENTRAL COAST	0.112	0.100	0.099	0.091	0.072	0.083	0.083	0.077	0.072	0.071	0.068	0.062	0.064	0.064	0.062	0.059	0.059	0.059	0.054	0.046
NORTH COAST													0.054	0.053	0.053	0.053	0.049	0.050	0.054	0.053
NORTHEAST PLATEAU																				
SACRAMENTO VALLEY	0.120	0.119	0.114	0.103	0.109	0.112	0.115	0.123	0.117	0.115	0.122	0.128	0.126	0.115	0.106	0.101	0.095	0.091	0.107	0.097
SALTON SEA	0.109	0.140	0.150	0.149	0.124	0.085	0.083	0.084	0.089	0.092	0.091	0.088	0.088	0.153	0.182	0.178	0.178	0.150	0.145	0.170
SAN DIEGO	0.245	0.233	0.225	0.183	0.193	0.193	0.203	0.216	0.233	0.210	0.189	0.169	0.155	0.145	0.129	0.129	0.126	0.116	0.122	0.117
SAN FRANCISCO BAY AREA	0.233	0.225	0.183	0.186	0.196	0.189	0.188	0.167	0.162	0.156	0.160	0.155	0.141	0.116	0.119	0.114	0.111	0.101	0.108	0.105
SAN JOAQUIN VALLEY	0.185	0.173	0.134	0.119	0.144	0.148	0.145	0.144	0.151	0.156	0.134	0.132	0.132	0.131	0.127	0.119	0.115	0.100	0.107	0.106
SOUTH CENTRAL COAST	0.150	0.150	0.139	0.140	0.136	0.132	0.130	0.123	0.119	0.119	0.120	0.114	0.104	0.104	0.112	0.114	0.110	0.097	0.089	0.086
SOUTH COAST	0.445	0.414	0.378	0.324	0.317	0.303	0.311	0.335	0.322	0.324	0.312	0.311	0.285	0.241	0.229	0.242	0.237	0.202	0.185	0.213

Table B-18

Nitrogen Dioxide

Maximum 1-Hour Concentration (ppm)

AIR BASIN	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
GREAT BASIN VALLEYS																				
LAKE COUNTY	0.030																			
LAKE TAHOE	0.060	0.090	0.080	0.060	0.080	0.080	0.080	0.070	0.070	0.150	0.060	0.060	0.060	0.057	0.059	0.061	0.051	0.052	0.060	0.086
MOJAVE DESERT	0.300	0.200	0.150	0.160	0.140	0.150	0.130	0.100	0.120	0.190	0.350	0.240	0.360	0.138	0.140	0.087	0.107	0.196	0.113	0.105
MOUNTAIN COUNTIES	0.060					0.050	0.040													
NORTH CENTRAL COAST	0.120	0.070	0.110	0.060	0.090	0.110	0.070	0.070	0.070	0.060	0.060	0.070	0.070	0.067	0.054	0.060	0.056	0.085	0.054	0.071
NORTH COAST	0.020							0.030				0.080	0.050	0.079	0.078	0.044	0.061	0.052	0.066	0.042
NORTHEAST PLATEAU																				
SACRAMENTO VALLEY	0.110	0.120	0.110	0.160	0.130	0.120	0.100	0.180	0.130	0.160	0.240	0.190	0.120	0.111	0.099	0.145	0.092	0.101	0.110	0.085
SALTON SEA	0.090	0.150	0.160	0.090	0.080	0.080	0.080	0.110	0.090	0.090	0.090	0.090	0.090	0.227	0.217	0.164	0.128	0.257	0.286	0.192
SAN DIEGO	0.270	0.200	0.200	0.230	0.210	0.220	0.260	0.280	0.230	0.180	0.160	0.190	0.130	0.157	0.140	0.124	0.142	0.132	0.172	0.117
SAN FRANCISCO BAY AREA	0.220	0.160	0.180	0.180	0.190	0.160	0.170	0.160	0.150	0.150	0.150	0.110	0.120	0.107	0.116	0.108	0.118	0.098	0.128	0.114
SAN JOAQUIN VALLEY	0.210	0.150	0.150	0.190	0.160	0.190	0.150	0.210	0.210	0.160	0.130	0.190	0.160	0.144	0.119	0.110	0.103	0.112	0.108	0.099
SOUTH CENTRAL COAST	0.120	0.180	0.160	0.200	0.160	0.150	0.150	0.160	0.120	0.160	0.160	0.100	0.110	0.133	0.127	0.110	0.115	0.097	0.099	0.124
SOUTH COAST	0.450	0.410	0.470	0.350	0.350	0.330	0.420	0.540	0.340	0.280	0.380	0.300	0.260	0.247	0.239	0.250	0.200	0.255	0.307	0.214

Table B-19

Maximum Annual Average (ppm)

AIR BASIN	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
GREAT BASIN VALLEYS																				
LAKE COUNTY																				
LAKE TAHOE	0.014		0.010	0.012	0.011	0.010	0.012	0.012		0.012	0.012		0.011	0.012	0.011	0.011	0.011	0.010	0.011	0.011
MOJAVE DESERT	0.025	0.025	0.021	0.021	0.025	0.021	0.016	0.018	0.026	0.019	0.014	0.025	0.020	0.024	0.023	0.021	0.020	0.022	0.024	0.025
MOUNTAIN COUNTIES																				
NORTH CENTRAL COAST	0.015	0.012	0.011	0.014	0.015	0.014	0.005	0.014	0.014	0.012	0.011	0.012	0.012	0.012		0.011	0.010	0.010	0.005	0.007
NORTH COAST														0.008	0.009		0.010	0.010	0.010	0.011
NORTHEAST PLATEAU																				
SACRAMENTO VALLEY	0.021	0.018	0.016	0.019	0.021	0.022	0.022	0.025	0.019	0.023	0.024	0.021	0.017	0.022	0.022	0.022	0.019	0.021	0.021	0.019
SALTON SEA	0.019	0.025	0.027	0.014	0.020		0.019	0.022	0.024	0.021	0.021		0.019	0.021	0.021	0.020		0.016	0.018	0.016
SAN DIEGO	0.024	0.030	0.027	0.031	0.032	0.030	0.032	0.035	0.031	0.029	0.029	0.027	0.023	0.024	0.026	0.022	0.024	0.023	0.026	0.024
SAN FRANCISCO BAY AREA	0.033	0.032	0.029	0.032	0.035	0.033	0.031	0.032	0.032	0.030	0.031	0.027	0.027	0.028	0.027	0.025	0.025	0.025	0.026	0.025
SAN JOAQUIN VALLEY	0.034	0.030	0.030	0.028	0.031	0.030	0.030	0.032	0.033	0.031	0.030	0.027	0.024	0.024	0.029	0.029	0.024	0.023	0.027	0.024
SOUTH CENTRAL COAST	0.023	0.024	0.018	0.031	0.030	0.022	0.017	0.024	0.027	0.025	0.024	0.022	0.023	0.022	0.024	0.019	0.020	0.021	0.022	0.020
SOUTH COAST	0.071	0.062	0.059	0.057	0.060	0.061	0.055	0.061	0.057	0.055	0.055	0.051	0.050	0.050	0.046	0.042	0.043	0.043	0.051	0.044

Table B-20

Sulfur Dioxide

Peak 1-Hour Indicator (ppm)

AIR BASIN	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
GREAT BASIN VALLEYS																				
LAKE COUNTY																				
LAKE TAHOE																				
MOJAVE DESERT	0.02	0.02	0.03	0.04	0.04	0.03	0.03	0.06	0.06	0.06	0.04	0.03	0.02	0.02	0.02	0.01	0.02	0.01	0.01	0.01
MOUNTAIN COUNTIES																				
NORTH CENTRAL COAST	0.02	0.02	0.02	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.01	0.01	0.03	0.04	0.05	0.04	0.03	0.01	0.01	0.01
NORTH COAST													0.01	0.01						
NORTHEAST PLATEAU																				
SACRAMENTO VALLEY	0.02	0.02	0.02	0.02	0.03	0.03		0.05	0.05	0.04	0.04	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02
SALTON SEA	0.03	0.03	0.02	0.02												0.04	0.04	0.04	0.04	0.03
SAN DIEGO	0.10	0.12	0.10	0.09	0.07	0.06	0.06	0.06	0.06	0.07	0.06	0.08	0.09	0.09	0.08	0.08	0.08	0.08	0.08	0.07
SAN FRANCISCO BAY AREA	0.11	0.11	0.07	0.07	0.07	0.08	0.08	0.08	0.07	0.06	0.05	0.05	0.04	0.05	0.04	0.04	0.05	0.04	0.05	0.06
SAN JOAQUIN VALLEY	0.15	0.14	0.12	0.09	0.09	0.09	0.08	0.07	0.06	0.06	0.04	0.04	0.03	0.02	0.02	0.03	0.03		0.01	0.02
SOUTH CENTRAL COAST	0.15	0.15	0.12	0.10	0.34	0.32	0.29	0.22	0.16	0.16	0.14	0.13	0.13	0.03	0.16	0.17	0.16	0.16	0.14	0.14
SOUTH COAST	0.12	0.11	0.10	0.11	0.10	0.09	0.07	0.06	0.06	0.06	0.06	0.11	0.10	0.10	0.06	0.05	0.06	0.05	0.05	0.05

Table B-21

Sulfur Dioxide

Maximum 24-Hour Concentration (ppm)

AIR BASIN	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
GREAT BASIN VALLEYS																				
LAKE COUNTY																				
LAKE TAHOE																				
MOJAVE DESERT	0.01	0.01	0.00	0.00	0.01	0.01	0.00	0.02	0.03	0.05	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
MOUNTAIN COUNTIES																				
NORTH CENTRAL COAST	0.01	0.01	0.01	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.01	0.00	0.00
NORTH COAST	0.00							0.01				0.01	0.00	0.00						
NORTHEAST PLATEAU																				
SACRAMENTO VALLEY	0.01	0.01	0.01	0.01	0.01	0.01		0.02	0.02	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.01
SALTON SEA	0.01	0.00	0.01	0.00										0.02	0.02	0.02	0.02	0.02	0.02	0.01
SAN DIEGO	0.03	0.04	0.02	0.04	0.02	0.03	0.04	0.02	0.02	0.02	0.02	0.04	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01
SAN FRANCISCO BAY AREA	0.03	0.03	0.04	0.05	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.02	0.04	0.03
SAN JOAQUIN VALLEY	0.06	0.04	0.05	0.03	0.05	0.02	0.02	0.03	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01		0.01	0.00
SOUTH CENTRAL COAST	0.04	0.02	0.02	0.02	0.07	0.06	0.04	0.04	0.02	0.09	0.02	0.02	0.05	0.01	0.04	0.03	0.03	0.04	0.03	0.03
SOUTH COAST	0.04	0.04	0.04	0.06	0.04	0.04	0.02	0.04	0.02	0.04	0.02	0.03	0.01	0.01	0.02	0.01	0.01	0.01	0.02	0.04

Table B-22

Maximum Annual Average (ppm)

AIR BASIN	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
GREAT BASIN VALLEYS																				
LAKE COUNTY																				
LAKE TAHOE																				
MOJAVE DESERT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MOUNTAIN COUNTIES																				
NORTH CENTRAL COAST	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NORTH COAST	0.00							0.00				0.00	0.00	0.00						
NORTHEAST PLATEAU																				
SACRAMENTO VALLEY	0.00	0.00	0.00	0.00	0.00	0.00		0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SALTON SEA	0.00	0.00	0.00	0.00										0.01	0.01	0.00	0.00	0.00	0.00	0.00
SAN DIEGO	0.01	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SAN FRANCISCO BAY AREA	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SAN JOAQUIN VALLEY	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00
SOUTH CENTRAL COAST	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00
SOUTH COAST	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table B-23

APPENDIX C

Emissions, Air Quality, and Health Risk for Ten Toxic Air Contaminants

Appendix C: *Emissions, Air Quality, and Health Risk for Ten Toxic Air Contaminants*

List of Tables

List of Tables (continued)

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Introduction

This appendix contains TAC emissions data for all counties in California. It also contains air quality and health risk data for counties and individual sites within California's five most populated air basins: South Coast Air Basin, San Francisco Bay Area Air Basin, San Joaquin Valley Air Basin, San Diego Air Basin, and Sacramento Valley Air Basin. It is important to note that some counties are located in more than one air basin. For these counties, the data are for that portion of the county located in each air basin. As in Chapter 5, ten toxic air contaminants are included: acetaldehyde, benzene, 1,3-butadiene, carbon tetrachloride, chromium (hexavalent), *para*-dichlorobenzene, formaldehyde, methylene chloride, perchloroethylene, and diesel particulate matter (diesel PM). These are the ten TACs for which ambient air quality data, primarily, indicate the most substantial health risk in California. There may be other TACs that pose a substantial risk, but for which data are not available, or which have not been identified as a concern.

The countywide emissions data represent tons per year for the 2001 emission inventory year. The data for stationary sources include emissions data associated with the air toxics "Hot Spots" Program. The toxic air contaminant emissions for each area-wide and mobile source category are calculated by applying a speciation profile, maintained by ARB staff, to the total organic gas and total particulate matter criteria pollutant emissions associated with that category.

For all source categories associated with diesel fuel combustion, all "PM" emitted from these sources was considered "diesel PM." The area-wide source emission estimates were made by either the local air pollution control districts or the ARB staff. These estimates have been speciated for toxics. The other mobile source emission estimates are primarily from ARB's OFFROAD model, speciated for toxics. For the categories not currently included in the model, the emission estimates have been developed by either local districts or ARB staff. Districts may also provide estimates for categories usually developed by ARB staff. Finally, the on-road mobile source emission estimates are based on the current model, EMFAC 2001, version 2.08. Again, the emission estimates have been speciated for toxics.

Readers may note that the diesel PM emission estimates differ from those presented in the ARB's October 2000 report titled: "*Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*" (Diesel Risk Reduction Plan). This is because they incorporate more recent data. More specifically, the on-road mobile source emissions cited in the Diesel Risk Reduction Plan are based on an earlier version of EMFAC 2001 (EMFAC 1.99(f) 6/26/00) and the other mobile inventory includes revised estimates for ship diesel PM emissions. We will continue to refine estimates of diesel PM emissions as we develop the regulations identified in the Diesel Risk Reduction Plan. Even with these differences, the statewide emission estimates for diesel PM compare favorably.

For stationary sources, this almanac uses the estimates prepared for the Diesel Risk Reduction Plan. These estimates differ somewhat from those currently presented on the ARB web site. As discussed above, we will review the methodology for estimating stationary source emissions and include revised estimates as appropriate.

In addition to the emissions data, the air quality and health risk data cover the time period of 1990 through 2000. It is important to note that the data provided reflect concentrations measured at a specific location or, in the case of the air basin summary data, spatially averaged concentrations. Therefore, the ambient concentrations and health risks for other locations may be higher or lower.

County Emissions (tons/year) for Ten Toxic Air Contaminants by Air Basin

Great Basin Valleys Air Basin

TAC	Alpine	Inyo	Mono
Acetaldehyde	7	16	32
Benzene	25	27	60
1,3-Butadiene	6	5	14
Carbon Tetrachloride	0	0	0
Chromium (Hexavalent)	<.01	<.01	0.02
para-Dichlorobenzene	<1	<1	<1
Formaldehyde	24	31	74
Methylene Chloride	<1	2	1
Perchloroethylene	<1	11	7
Diesel PM	1	18	15

Table C-1

Lake County Air Basin

TAC	Lake
Acetaldehyde	44
Benzene	127
1,3-Butadiene	22
Carbon Tetrachloride	0
Chromium (Hexavalent)	<.01
para-Dichlorobenzene	3
Formaldehyde	103
Methylene Chloride	8
Perchloroethylene	40
Diesel PM	51

Table C-2

County Emissions (tons/year) for Ten Toxic Air Contaminants by Air Basin

Lake Tahoe Air Basin

TAC	El Dorado[1]	Placer[1]
Acetaldehyde	39	18
Benzene	49	22
1,3-Butadiene	11	4
Carbon Tetrachloride	<.01	0
Chromium (Hexavalent)	<.01	<.01
para-Dichlorobenzene	2	<1
Formaldehyde	78	30
Methylene Chloride	5	3
Perchloroethylene	23	8
Diesel PM	32	7

1. This Air Basin includes only a portion of this county.

Table C-3

Mojave Desert Air Basin

TAC	Kern[1]	Los Angeles[1]	Riverside[1]	San Bernardino[1]
Acetaldehyde	106	68	6	155
Benzene	103	156	37	333
1,3-Butadiene	38	26	2	59
Carbon Tetrachloride	0.02	0	0	<.01
Chromium (Hexavalent)	0.31	0.02	<.01	0.08
para-Dichlorobenzene	5	17	1	24
Formaldehyde	315	184	47	472
Methylene Chloride	13	96	4	77
Perchloroethylene	52	69	4	197
Diesel PM	120	249	12	395

1. This Air Basin includes only a portion of this county.

Table C-4

County Emissions (tons/year) for Ten Toxic Air Contaminants by Air Basin

Mountain Counties Air Basin

TAC	Amador	Calaveras	El Dorado[1]	Mariposa	Nevada	Placer[1]	Plumas	Sierra	Tuolumne
Acetaldehyde	35	48	84	26	112	17	68	12	62
Benzene	68	102	124	55	118	27	159	40	129
1,3-Butadiene	18	27	23	12	24	6	47	12	29
Carbon Tetrachloride	0	0	0	0	0	0	0	0	0
Chromium (Hexavalent)	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01
para-Dichlorobenzene	2	2	7	<1	5	1	1	<1	3
Formaldehyde	75	109	153	61	186	33	177	39	146
Methylene Chloride	5	5	16	2	20	6	3	<1	9
Perchloroethylene	20	27	68	10	22	19	12	2	33
Diesel PM	32	39	56	16	66	24	47	3	52

1. This Air Basin includes only a portion of this county.

Table C-5

North Central Coast Air Basin

TAC	Monterey	San Benito	Santa Cruz
Acetaldehyde	103	17	67
Benzene	347	40	156
1,3-Butadiene	63	13	21
Carbon Tetrachloride	<.01	0	0
Chromium (Hexavalent)	<.01	<.01	<.01
para-Dichlorobenzene	21	3	13
Formaldehyde	291	39	142
Methylene Chloride	74	8	51
Perchloroethylene	240	29	175
Diesel PM	283	60	137

Table C-6

County Emissions (tons/year) for Ten Toxic Air Contaminants by Air Basin

North Coast Air Basin

TAC	Del Norte	Humboldt	Mendocino	Sonoma[1]	Trinity
Acetaldehyde	23	94	71	30	22
Benzene	34	135	122	110	40
1,3-Butadiene	17	29	20	16	15
Carbon Tetrachloride	0	0	0	0	0
Chromium (Hexavalent)	<.01	<.01	<.01	<.01	<.01
para-Dichlorobenzene	2	7	5	3	<1
Formaldehyde	39	179	144	79	46
Methylene Chloride	5	18	14	12	2
Perchloroethylene	22	78	58	11	9
Diesel PM	39	213	159	82	12

1. This Air Basin includes only a portion of this county.

Table C-7

Northeast Plateau Air Basin

TAC	Lassen	Modoc	Siskiyou
Acetaldehyde	63	22	84
Benzene	110	33	131
1,3-Butadiene	24	6	67
Carbon Tetrachloride	0	0	0
Chromium (Hexavalent)	<.01	<.01	<.01
para-Dichlorobenzene	2	<1	2
Formaldehyde	138	36	164
Methylene Chloride	4	1	6
Perchloroethylene	21	7	26
Diesel PM	61	50	109

Table C-8

County Emissions (tons/year) for Ten Toxic Air Contaminants by Air Basin

Sacramento Valley Air Basin

TAC	Butte	Colusa	Glenn	Placer[1]	Sacramento	Shasta	Solano[1]	Sutter	Tehama	Yolo	Yuba
Acetaldehyde	104	16	25	81	241	146	31	35	50	54	45
Benzene	240	66	93	153	669	209	142	128	59	178	86
1,3-Butadiene	42	19	18	28	100	48	16	21	12	20	22
Carbon Tetrachloride	0	0	0	0	0.06	0	<.01	0	<.01	0	0
Chromium (Hexavalent)	<.01	<.01	<.01	<.01	0.03	<.01	<.01	0.02	<.01	<.01	<.01
para-Dichlorobenzene	11	1	1	11	62	9	6	4	3	8	4
Formaldehyde	265	64	90	179	597	295	83	77	91	117	123
Methylene Chloride	33	3	3	47	178	23	16	10	7	25	8
Perchloroethylene	22	12	16	108	461	112	60	48	11	93	36
Diesel PM	222	74	88	172	807	210	107	148	107	224	73

1. This Air Basin includes only a portion of this county.

Table C-9

Salton Sea Air Basin

TAC	Imperial	Riverside[1]
Acetaldehyde	102	54
Benzene	388	199
1,3-Butadiene	43	29
Carbon Tetrachloride	0	0
Chromium (Hexavalent)	0.02	<.01
para-Dichlorobenzene	8	16
Formaldehyde	301	154
Methylene Chloride	19	60
Perchloroethylene	86	79
Diesel PM	234	172

1. This Air Basin includes only a portion of this county.

Table C-10

County Emissions (tons/year) for Ten Toxic Air Contaminants by Air Basin

San Diego Air Basin

TAC	San Diego
Acetaldehyde	567
Benzene	1471
1,3-Butadiene	264
Carbon Tetrachloride	<.01
Chromium (Hexavalent)	0.22
para-Dichlorobenzene	150
Formaldehyde	1542
Methylene Chloride	378
Perchloroethylene	1668
Diesel PM	1693

Table C-11

San Francisco Bay Area Air Basin

TAC	Alameda	Contra Costa	Marin	Napa	San Francisco	San Mateo	Santa Clara	Solano[1]	Sonoma[1]
Acetaldehyde	311	179	56	37	159	163	278	175	101
Benzene	677	538	180	109	321	381	859	213	234
1,3-Butadiene	102	78	29	16	47	70	127	71	35
Carbon Tetrachloride	0.03	1.46	<.01	<.01	0	<.01	<.01	<.01	0.02
Chromium (Hexavalent)	0.02	<.01	<.01	<.01	<.01	<.01	0.01	0.20	<.01
para-Dichlorobenzene	74	49	13	7	40	37	89	15	20
Formaldehyde	657	520	150	94	380	445	737	539	228
Methylene Chloride	312	140	37	17	112	149	855	39	76
Perchloroethylene	467	248	89	23	284	258	422	54	67
Diesel PM	950	701	158	109	821	391	908	160	300

1. This Air Basin includes only a portion of this county.

Table C-12

County Emissions (tons/year) for Ten Toxic Air Contaminants by Air Basin

San Joaquin Valley Air Basin

TAC	Fresno	Kern[1]	Kings	Madera	Merced	San Joaquin	Stanislaus	Tulare
Acetaldehyde	269	290	112	65	85	178	133	160
Benzene	971	1158	234	163	259	445	345	370
1,3-Butadiene	98	104	43	27	44	66	62	116
Carbon Tetrachloride	<.01	<.01	0	0	0	0	0	0
Chromium (Hexavalent)	0.17	0.04	0.02	<.01	0.01	0.09	0.03	<.01
para-Dichlorobenzene	43	34	7	7	11	30	24	20
Formaldehyde	647	1221	334	173	208	442	321	381
Methylene Chloride	146	73	15	18	30	91	71	53
Perchloroethylene	160	86	16	15	38	80	63	43
Diesel PM	938	679	142	176	301	694	480	523

1. This Air Basin includes only a portion of this county.

Table C-13

South Central Coast Air Basin

TAC	San Luis Obispo	Santa Barbara	Ventura
Acetaldehyde	88	104	134
Benzene	214	378	435
1,3-Butadiene	40	51	56
Carbon Tetrachloride	0	0.07	0.02
Chromium (Hexavalent)	<.01	0.03	0.02
para-Dichlorobenzene	14	21	40
Formaldehyde	217	383	349
Methylene Chloride	43	117	170
Perchloroethylene	43	78	83
Diesel PM	254	299	430

Table C-14

County Emissions (tons/year) for Ten Toxic Air Contaminants by Air Basin

South Coast Air Basin

TAC	Los Angeles[1]	Orange	Riverside[1]	San Bernardino[1]
Acetaldehyde	1166	422	221	253
Benzene	3928	1307	562	646
1,3-Butadiene	630	192	100	114
Carbon Tetrachloride	1.83	0.08	0.02	<.01
Chromium (Hexavalent)	0.49	0.05	0.12	0.02
para-Dichlorobenzene	483	155	64	69
Formaldehyde	3394	1125	574	639
Methylene Chloride	2562	1009	248	462
Perchloroethylene	3088	1537	274	399
Diesel PM	4338	1731	817	726

1. This Air Basin includes only a portion of this county.

Table C-15

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Air Quality and Health Risk

The air quality and health risk data in the following tables cover the time period of 1990 through 2000. Annual average concentrations and health risks are listed by site for California's five most populated air basins. Data are included for the ten TACs posing the most substantial health risk in California, based primarily on ambient air quality data. These compounds are: acetaldehyde, benzene, 1,3-butadiene, carbon tetrachloride, chromium (hexavalent), *para*-dichlorobenzene, formaldehyde, methylene chloride, perchloroethylene, and diesel particulate matter.

The ambient data for all TACs except diesel particulate matter are based on concentrations measured at sites in California's TAC monitoring network. For diesel particulate matter, the ARB made a preliminary estimation of concentrations for the State's fifteen air basins using a particulate matter-based exposure method. The method uses the ARB emission inventory's PM_{10} database, ambient PM_{10} monitoring data, and the results from several studies with chemical speciation of ambient data. These data were used, along with receptor modeling techniques, to estimate statewide outdoor concentrations of diesel particulate matter. Details on the method and the resulting estimates can be found in the ARB report entitled: *"Proposed Identification of Diesel Exhaust as a Toxic Air Contaminant -- Appendix III Part A Exposure Assessment,"* (April 1998).

Numerous factors influence the ambient measurements, and a number of assumptions are embodied in the summary statistics. These factors are described in Chapter 1 under the heading *"Interpreting the Emission and Air Quality Statistics."* These factors must be considered when using the statistics presented here. Finally, it is important to note that the data provided reflect concentrations measured at a specific location or, in the case of the air basin summary data, spatially averaged concentrations. Therefore, the ambient concentrations and health risks for other locations may be higher or lower.

South Coast Air Basin

COUNTY / SITE	TAC	Annual Average Concentration*											Health Risk**										
		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
LOS ANGELES Azusa	Acetaldehyde											1.10											5
	Benzene											0.69											64
	1,3-Butadiene											0.15											55
	Carbon Tetrachloride											0.09											24
	Chromium (Hexavalent)											0.12											19
	para-Dichlorobenzene											0.10											7
	Formaldehyde											3.05											22
	Methylene Chloride											1.32											5
	Perchloroethylene											0.18											7
	Diesel PM	No Monitoring Data Available																					
Total Health Risk																							208
LOS ANGELES Burbank-West Palm Avenue	Acetaldehyde	3.16	3.89		3.06	2.46	0.79			1.94	2.70	1.70	15	19		15	12	4			9	13	8
	Benzene	4.79	3.91	3.44	2.63	3.33	2.45	1.91	1.48	1.66	1.64	1.27	444	362	319	244	308	227	177	137	154	151	117
	1,3-Butadiene	0.78	0.62	0.73	0.75	0.75	0.61	0.51	0.42	0.48	0.48	0.35	294	234	272	282	283	227	192	158	182	181	130
	Carbon Tetrachloride	0.14	0.13				0.10	0.08		0.11		0.09	37	35				28	22		30		25
	Chromium (Hexavalent)			0.65	0.37	0.43	1.24			0.23	0.20	0.19			97	55	64	186			34	29	28
	para-Dichlorobenzene		0.23	0.22	0.19	0.14	0.20	0.10	0.11			0.13		15	15	12	9	13	7	7			8
	Formaldehyde	4.05	3.59		3.66	3.92	4.58			4.72	6.07	4.14	30	26		27	29	34			35	45	30
	Methylene Chloride	3.25	1.69	1.42	2.01	1.94	1.82	1.41	1.11	1.07		0.80	11	6	5	7	7	6	5	4	4		3
	Perchloroethylene	1.19	0.79	0.61	0.62	0.66	0.49	0.44	0.37	0.50		0.37	48	31	24	25	26	19	18	15	20		15
	Diesel PM	No Monitoring Data Available																					
Total Health Risk													879	728	732	667	738	744	421	321	468	419	364
LOS ANGELES Los Angeles-North Main Street	Acetaldehyde	2.68	2.78	2.5	2.89	2.35	1.28	2.33			1.43	0.84	13	13	12	14	11	6	11			7	4
	Benzene	3.50	3.25	2.97	2.54	2.45	2.24	1.86		1.36	1.50	1.04	324	301	275	235	227	207	173		126	139	97
	1,3-Butadiene	0.60	0.55	0.64	0.73	0.59	0.60	0.54		0.42	0.43	0.30	226	206	242	276	221	225	204		158	162	111
	Carbon Tetrachloride	0.14	0.13				0.10	0.08		0.11		0.10	36	35				27	21		30		26
	Chromium (Hexavalent)				0.24	0.27	0.23	0.17			0.11	0.13				36	40	35	25			16	19
	para-Dichlorobenzene		0.19	0.22	0.19	0.16	0.19	0.12				0.16		13	14	12	10	13	8				11
	Formaldehyde	3.50	3.00	2.30	3.23	3.54	4.13	5.87			3.88	2.42	26	22	17	24	26	30	43			29	18
	Methylene Chloride	1.28	2.72	0.68	1.05	1.06	1.51	1.10		0.80	1.20	0.68	4	9	2	4	4	5	4		3	4	2
	Perchloroethylene	0.55	0.60	0.54	0.59	0.50	0.57	0.50		0.23		0.19	22	24	21	24	20	23	20		9		7
	Diesel PM	No Monitoring Data Available																					
Total Health Risk													651	623	583	625	559	571	509		326	357	295

* Concentrations for Chromium (Hexavalent) are expressed as ng/m^3, and concentrations for Diesel PM are expressed as ug/m^3. Concentrations for all other TACs are expressed as ppb.
** Health Risk represents the number of excess cancer cases per million people based on a lifetime (70-year) exposure to the annual average concentration. Total Health Risk represents only those compounds listed in this table and only those with data for the year. There may be other significant compounds for which monitoring and/or health risk information are not available.

Table C-16

South Coast Air Basin

COUNTY / SITE	TAC	Annual Average Concentration*											Health Risk**										
		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
LOS ANGELES North Long Beach	Acetaldehyde	2.49	2.52		2.36	2.18	0.81		1.43			1.16	12	12		11	11	4		7			6
	Benzene	3.53	2.45	2.60	1.99	2.04	1.69		1.24	1.16	1.11	1.00	327	227	241	185	188	157		115	108	103	92
	1,3-Butadiene	0.59	0.44	0.52	0.58	0.45	0.45		0.36	0.34	0.32	0.28	223	165	197	216	168	169		137	127	121	104
	Carbon Tetrachloride	0.14	0.13				0.10			0.12		0.10	37	34				26			31		26
	Chromium (Hexavalent)			0.44	0.34	0.22	0.25		0.15	0.11	0.12	0.12			66	51	33	38		22	16	18	18
	para-Dichlorobenzene		0.17	0.26	0.19	0.12	0.17		0.16			0.13		11	17	13	8	11		10			8
	Formaldehyde	2.97	2.76		3.22	3.06	3.29		3.68			2.88	22	20		24	23	24		27			21
	Methylene Chloride	2.05	0.88	1.00	1.15	0.84	0.98		0.74	0.60		0.65	7	3	3	4	3	3		3	2		2
	Perchloroethylene	0.48	0.36	0.35	0.43	0.32	0.32		0.23	0.19		0.17	19	14	14	17	13	13		9	8		7
	Diesel PM	No Monitoring Data Available																					
Total Health Risk													647	486	538	521	447	445		330	292	242	284
RIVERSIDE Riverside-Rubidoux	Acetaldehyde	1.87	2.54	1.86	2.19	2.08	0.89	1.84			1.36	1.49	9	12	9	11	10	4	9			7	7
	Benzene	2.55	2.22	1.90	1.77	2.01	1.45	1.03			0.87	0.85	236	206	176	164	186	134	95			80	79
	1,3-Butadiene	0.34	0.31	0.29	0.38	0.36	0.33	0.27			0.21	0.19	128	117	110	143	136	125	100			78	72
	Carbon Tetrachloride	0.13	0.14				0.10	0.08				0.10	34	36				27	21				25
	Chromium (Hexavalent)			0.33	0.33	0.36	0.38	0.22			0.19	0.35			50	50	55	56	33			29	52
	para-Dichlorobenzene		0.13	0.13	0.16	0.12	0.17	0.11				0.14		9	8	10	8	11	7				9
	Formaldehyde	1.75	2.70	1.53	2.73	2.50	2.65	4.15			3.55	3.17	13	20	11	20	18	19	31			26	23
	Methylene Chloride		0.69	0.60	1.10	0.93	0.98	0.83			0.58	0.69		2	2	4	3	3	3			2	2
	Perchloroethylene	0.24	0.28	0.20	0.20	0.19	0.18	0.18				0.13	9	11	8	8	8	7	7				5
	Diesel PM	No Monitoring Data Available																					
Total Health Risk													429	413	374	410	424	386	306			222	274
SAN BERNARDINO Fontana-Arrow Highway	Acetaldehyde																						
	Benzene									0.98											91		
	1,3-Butadiene									0.24											92		
	Carbon Tetrachloride									0.11											30		
	Chromium (Hexavalent)																						
	para-Dichlorobenzene																						
	Formaldehyde																						
	Methylene Chloride									0.59											2		
	Perchloroethylene									0.18											7		
	Diesel PM	No Monitoring Data Available																					
Total Health Risk																					222		

* Concentrations for Chromium (Hexavalent) are expressed as ng/m^3, and concentrations for Diesel PM are expressed as ug/m^3. Concentrations for all other TACs are expressed as ppb.
** Health Risk represents the number of excess cancer cases per million people based on a lifetime (70-year) exposure to the annual average concentration. Total Health Risk represents only those compounds listed in this table and only those with data for the year. There may be other significant compounds for which monitoring and/or health risk information are not available.

Table C-16 (continued)

South Coast Air Basin

COUNTY / SITE	TAC	Annual Average Concentration*											Health Risk**										
		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
SAN BERNARDINO Upland-San Bernardino Road	Acetaldehyde	2.12	3.28	2.36	2.84	2.42	1.09	2.13					10	16	11	14	12	5	10				
	Benzene	2.73	2.70	2.14	1.92	2.15	1.62	1.11	1.11				253	250	198	178	199	150	103	103			
	1,3-Butadiene	0.35	0.34	0.31	0.39	0.34	0.31	0.26	0.25				131	128	116	147	126	117	97	95			
	Carbon Tetrachloride	0.13	0.14		0.10		0.10	0.08					35	36		27		26	20				
	Chromium (Hexavalent)			0.22	0.16	0.16	0.20	0.12							33	24	24	30	17				
	para-Dichlorobenzene		0.13	0.14	0.14	0.10	0.13	0.10	0.14					9	9	9	7	9	7	9			
	Formaldehyde	2.35	3.34	1.98	3.25	2.67	3.21	5.20					17	25	15	24	20	24	38				
	Methylene Chloride	1.41	1.59	0.82	0.87	0.72	1.13	0.66	1.70				5	6	3	3	3	4	2	6			
	Perchloroethylene	0.42	0.72	0.36	0.40	0.29	0.26	0.20	0.21				17	29	15	16	11	11	8	8			
	Diesel PM	No Monitoring Data Available																					
Total Health Risk													**468**	**499**	**400**	**442**	**402**	**376**	**302**	**221**			
BASIN SUMMARY	Acetaldehyde	2.46	3.00	2.46	2.67	2.30	0.97	2.08	1.77	1.54	1.63	1.26	12	15	12	13	11	5	10	9	7	8	6
	Benzene	3.42	2.91	2.61	2.17	2.40	1.89	1.45	1.34	1.25	1.20	0.97	317	269	242	201	222	175	134	124	116	111	90
	1,3-Butadiene	0.53	0.45	0.50	0.57	0.50	0.46	0.39	0.38	0.35	0.33	0.25	200	170	187	212	187	173	146	142	133	123	94
	Carbon Tetrachloride	0.14	0.13		0.11		0.10	0.08		0.11		0.10	36	35		28		27	21		30		25
	Chromium (Hexavalent)			0.39	0.29	0.29	0.46	0.18	0.17	0.15	0.14	0.18			59	43	43	69	27	25	22	22	27
	para-Dichlorobenzene		0.17	0.19	0.17	0.13	0.17	0.11	0.13			0.13		11	13	11	8	11	7	9			9
	Formaldehyde	2.92	3.08	2.22	3.22	3.14	3.57	5.06	4.47	3.79	4.06	3.13	22	23	16	24	23	26	37	33	28	30	23
	Methylene Chloride	1.86	1.51	0.90	1.23	1.10	1.28	0.95	1.14	0.85	0.92	0.83	6	5	3	4	4	4	3	4	3	3	3
	Perchloroethylene	0.58	0.55	0.41	0.45	0.39	0.36	0.32	0.27	0.26		0.21	23	22	16	18	16	15	13	11	10		8
	Diesel PM***	*(3.6)*					*(2.7)*					*(2.4)*	*(1080)*					*(810)*					*(720)*
Average Basin Health Risk													**616**	**550**	**548**	**554**	**514**	**505**	**398**	**357**	**349**	**297**	**285**

* Concentrations for Chromium (Hexavalent) are expressed as ng/m^3, and concentrations for Diesel PM are expressed as ug/m^3. Concentrations for all other TACs are expressed as ppb.
** Health Risk represents the number of excess cancer cases per million people based on a lifetime (70-year) exposure to the annual average concentration. Total Health Risk represents only those compounds listed in this table and only those with data for the year. There may be other significant compounds for which monitoring and/or health risk information are not available.
*** The Diesel PM concentrations are estimates based on receptor modeling. Because data are not available for all years, Diesel PM is not included in the Average Basin Health Risk number.

Table C-16 (continued)

San Francisco Bay Area Air Basin

COUNTY / SITE	TAC	Annual Average Concentration*											Health Risk**										
		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
ALAMEDA Fremont-Chapel Way	Acetaldehyde	1.28	1.60	1.02	1.28	1.23	0.35	0.88	0.65	0.72			6	8	5	6	6	2	4	3	4		
	Benzene	1.92	1.67	1.21	1.35	1.25	1.24	0.58		0.76	0.61	0.53	178	155	112	125	116	115	54		71	57	49
	1,3-Butadiene	0.28	0.26	0.19	0.32	0.25	0.27	0.20		0.24	0.18	0.14	106	97	72	120	95	101	75		90	66	51
	Carbon Tetrachloride	0.13	0.13		0.11		0.10	0.08				0.10	35	34		28		27	20				25
	Chromium (Hexavalent)			0.20	0.19	0.21	0.20	0.11		0.10	0.10	0.10			30	28	32	30	16		15	15	16
	para-Dichlorobenzene			0.11	0.11	0.10	0.12	0.10				0.10			7	7	7	8	7				7
	Formaldehyde	1.84	1.98	1.30	1.37	1.78	2.02	2.16	1.79	1.96			14	15	10	10	13	15	16	13	15		
	Methylene Chloride	0.76	0.58	0.52	0.83	0.50	0.62	0.50				0.50	3	2	2	3	2	2	2				2
	Perchloroethylene	0.19	0.21	0.13	0.11	0.09	0.12	0.07				0.08	8	8	5	5	3	5	3				3
	Diesel PM	No Monitoring Data Available																					
Total Health Risk													350	319	243	332	274	305	197	16	195	138	153
CONTRA COSTA Concord-2975 Treat Blvd.	Acetaldehyde	1.41			1.39	1.46	0.62	0.86	0.76		0.87		7			7	7	3	4	4		4	
	Benzene	1.84	1.58	1.41	1.13	1.08	1.09	0.48	0.56	0.57	0.57		171	147	130	105	100	101	44	52	53	53	
	1,3-Butadiene	0.32	0.27	0.25	0.31	0.23	0.24	0.15	0.18	0.19	0.16		118	100	95	114	87	91	56	66	72	58	
	Carbon Tetrachloride	0.13	0.13		0.11		0.10	0.08					34	33		29		27	22				
	Chromium (Hexavalent)				0.19	0.18	0.21	0.11	0.11		0.10					28	27	32	16	17		15	
	para-Dichlorobenzene			0.15	0.13	0.14	0.13	0.13	0.14						10	8	9	9	8	9			
	Formaldehyde	1.99			1.99	1.69	2.21	2.30	2.05		2.64		15			15	12	16	17	15		19	
	Methylene Chloride	0.67	0.51	0.66	0.54	0.54	0.55	0.55	0.50				2	2	2	2	2	2	2	2			
	Perchloroethylene	0.34	0.42	0.39	0.20	0.10	0.15	0.08	0.10				13	17	16	8	4	6	3	4			
	Diesel PM	No Monitoring Data Available																					
Total Health Risk													360	299	253	316	248	287	172	169	125	149	
CONTRA COSTA Richmond-13th Street	Acetaldehyde			0.78		0.92	0.36	0.59							4		4	2	3				
	Benzene		1.92	1.54	1.76	1.70	1.44	1.00						177	143	163	157	133	92				
	1,3-Butadiene		0.27	0.26	0.39	0.31	0.30	0.25						102	98	148	116	113	94				
	Carbon Tetrachloride		0.12		0.11		0.10	0.08						33		29		25	21				
	Chromium (Hexavalent)			0.19		0.15	0.26	0.13							28		23	39	19				
	para-Dichlorobenzene		0.14	0.12	0.12	0.10	0.12	0.19						9	8	8	7	8	13				
	Formaldehyde			1.08		1.32	2.22	4.27							8		10	16	31				
	Methylene Chloride		0.62	0.54	0.67	0.50	0.54	0.65						2	2	2	2	2	2				
	Perchloroethylene		0.15	0.09	0.09	0.06	0.04	0.03						6	4	4	2	2	1				
	Diesel PM	No Monitoring Data Available																					
Total Health Risk														329	295	354	321	340	276				

* Concentrations for Chromium (Hexavalent) are expressed as ng/m^3, and concentrations for Diesel PM are expressed as ug/m^3. Concentrations for all other TACs are expressed as ppb.
** Health Risk represents the number of excess cancer cases per million people based on a lifetime (70-year) exposure to the annual average concentration. Total Health Risk represents only those compounds listed in this table and only those with data for the year. There may be other significant compounds for which monitoring and/or health risk information are not available.

Table C-17

San Francisco Bay Area Air Basin

COUNTY / SITE	TAC	Annual Average Concentration*											Health Risk**										
		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
CONTRA COSTA San Pablo- El Portal	Acetaldehyde										0.55											3	
	Benzene									0.56	0.42										52	39	
	1,3-Butadiene									0.15	0.12										56	45	
	Carbon Tetrachloride																						
	Chromium (Hexavalent)										0.10											15	
	para-Dichlorobenzene																						
	Formaldehyde										1.24											9	
	Methylene Chloride																						
	Perchloroethylene																						
	Diesel PM	No Monitoring Data Available																					
Total Health Risk																					108	111	
SAN FRANCISCO San Francisco- Arkansas Street	Acetaldehyde	1.32				0.98	0.40		0.75	0.54			6				5	2		4	3		
	Benzene		1.49	1.25		1.07	0.95	0.53	0.51	0.63	0.65	0.48		138	116		99	88	49	48	59	61	45
	1,3-Butadiene		0.25	0.23		0.26	0.23	0.18	0.17	0.22	0.17	0.13		95	88		97	85	68	62	81	65	48
	Carbon Tetrachloride		0.12				0.10	0.08				0.10		33				26	21				25
	Chromium (Hexavalent)				0.19	0.18	0.25	0.12	0.13	0.10		0.12				29	26	37	18	19	15		18
	para-Dichlorobenzene		0.15	0.13		0.10	0.15	0.12	0.12			0.11		10	9		7	10	8	8			7
	Formaldehyde	1.71				1.33	1.58		1.62	1.45			13				10	12		12	11		
	Methylene Chloride		3.22	0.88		0.60	0.63	0.66	0.50			0.60		11	3		2	2	2	2			2
	Perchloroethylene		0.23	0.13		0.11	0.09	0.08	0.07			0.07		9	5		4	4	3	3			3
	Diesel PM	No Monitoring Data Available																					
Total Health Risk													19	296	221	29	250	266	169	158	169	126	148
SANTA CLARA San Jose- 4th Street	Acetaldehyde	1.53	1.55	1.41	1.58	1.27	0.35	1.04	0.97	0.77	0.93	0.79	7	8	7	8	6	2	5	5	4	4	4
	Benzene	3.02	2.44	2.03	1.89	1.88	1.55	0.97	0.93	1.04	0.73	0.70	280	226	188	175	174	144	89	86	97	68	65
	1,3-Butadiene	0.55	0.39	0.44	0.49	0.39	0.35	0.31	0.29	0.29	0.23	0.19	207	145	164	182	145	131	117	108	110	85	72
	Carbon Tetrachloride	0.13	0.13		0.11		0.10	0.08				0.10	33	34		28		27	20				25
	Chromium (Hexavalent)			0.29	0.25	0.25	0.33	0.17	0.13	0.11	0.10	0.13			43	37	38	49	25	20	17	15	19
	para-Dichlorobenzene			0.12	0.12	0.10	0.12	0.14	0.12			0.12			8	8	7	8	10	8			8
	Formaldehyde	2.27	2.00	2.09	1.83	2.16	2.28	2.70	2.56	2.24	2.69	2.24	17	15	15	13	16	17	20	19	16	20	16
	Methylene Chloride	0.83	6.65	0.66	0.58	0.80	0.69	0.55	0.75			0.50	3	23	2	2	3	2	2	3			2
	Perchloroethylene	0.16	0.15	0.10	0.09	0.06	0.07	0.07	0.10			0.09	6	6	4	4	3	3	3	4			4
	Diesel PM	No Monitoring Data Available																					
Total Health Risk													553	457	431	457	392	383	291	253	244	192	215

* Concentrations for Chromium (Hexavalent) are expressed as ng/m3, and concentrations for Diesel PM are expressed as ug/m3. Concentrations for all other TACs are expressed as ppb.
** Health Risk represents the number of excess cancer cases per million people based on a lifetime (70-year) exposure to the annual average concentration. Total Health Risk represents only those compounds listed in this table and only those with data for the year. There may be other significant compounds for which monitoring and/or health risk information are not available.

Table C-17 (continued)

San Francisco Bay Area Air Basin

COUNTY / SITE	TAC	Annual Average Concentration*											Health Risk**										
		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
BASIN SUMMARY	Acetaldehyde	1.30	1.40	1.03	1.31	1.17	0.42	0.83	0.73	0.65	0.76	0.68	6	7	5	6	6	2	4	4	3	4	3
	Benzene	2.18	1.82	1.49	1.49	1.40	1.26	0.71	0.61	0.71	0.60	0.56	202	169	138	138	129	116	66	56	66	55	52
	1,3-Butadiene	0.36	0.29	0.28	0.37	0.29	0.28	0.22	0.19	0.22	0.17	0.15	135	108	103	138	108	104	82	70	82	64	56
	Carbon Tetrachloride	0.13	0.13		0.11		0.10	0.08				0.09	34	33		29		26	21				25
	Chromium (Hexavalent)			0.23	0.20	0.19	0.25	0.13	0.12	0.10	0.10	0.12			34	29	29	37	19	17	15	15	18
	para-Dichlorobenzene		0.12	0.12	0.12	0.11	0.13	0.14	0.12			0.11		8	8	8	7	8	9	8			7
	Formaldehyde	1.87	1.73	1.43	1.56	1.66	2.06	2.62	1.85	1.76	2.09	1.77	14	13	11	11	12	15	19	14	13	15	13
	Methylene Chloride	1.04	2.32	0.65	0.72	0.59	0.60	0.58	0.55			0.53	4	8	2	2	2	2	2	2			2
	Perchloroethylene	0.20	0.23	0.17	0.13	0.08	0.09	0.07	0.07			0.08	8	9	7	5	3	4	3	3			3
	Diesel PM***	*(2.5)*					*(1.9)*					*(1.6)*	*(750)*					*(570)*					*(480)*
Average Basin Health Risk													403	355	308	366	296	314	225	174	179	153	179

* Concentrations for Chromium (Hexavalent) are expressed as ng/m^3, and concentrations for Diesel PM are expressed as ug/m^3. Concentrations for all other TACs are expressed as ppb.
** Health Risk represents the number of excess cancer cases per million people based on a lifetime (70-year) exposure to the annual average concentration. Total Health Risk represents only those compounds listed in this table and only those with data for the year. There may be other significant compounds for which monitoring and/or health risk information are not available.
*** The Diesel PM concentrations are estimates based on receptor modeling. Because data are not available for all years, Diesel PM is not included in the Average Basin Health Risk number.

Table C-17 (continued)

San Joaquin Valley Air Basin

		Annual Average Concentration*											Health Risk**										
COUNTY / SITE	**TAC**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**
KERN Bakersfield-Chester Avenue	Acetaldehyde	1.87	1.83	1.60	2.00								9	9	8	10							
	Benzene	2.68	2.22	1.54	1.47								248	205	143	136							
	1,3-Butadiene	0.39	0.31	0.24	0.33								146	115	90	123							
	Carbon Tetrachloride	0.13	0.13		0.10								33	33		27							
	Chromium (Hexavalent)			0.21	0.21										31	31							
	para-Dichlorobenzene			0.12	0.17										8	11							
	Formaldehyde	2.44	1.62	1.36	1.85								18	12	10	14							
	Methylene Chloride	0.92	0.65	0.52	0.99								3	2	2	3							
	Perchloroethylene	0.09	0.13	0.08	1.48								4	5	3	59							
	Diesel PM	No Monitoring Data Available																					
Total Health Risk													**461**	**381**	**295**	**414**							
KERN Bakersfield-5558 California Ave.	Acetaldehyde						0.49	1.59	1.22	1.27	1.69	1.19						2	8	6	6	8	6
	Benzene						1.14	0.78	0.57	0.70	0.71	0.58						106	72	53	65	66	54
	1,3-Butadiene						0.21	0.21	0.16	0.20	0.15	0.13						78	79	60	75	58	47
	Carbon Tetrachloride						0.10	0.08				0.09						26	21				25
	Chromium (Hexavalent)						0.26	0.13	0.10	0.10	0.10	0.10						39	19	15	15	16	16
	para-Dichlorobenzene						0.11	0.11	0.12			0.11						7	7	8			7
	Formaldehyde						1.92	3.48	3.12	2.99	3.67	2.79						14	26	23	22	27	21
	Methylene Chloride						0.54	0.64	0.50		0.50	0.58						2	2	2		2	2
	Perchloroethylene						0.09	0.12	0.04			0.07						4	5	2			3
	Diesel PM	No Monitoring Data Available																					
Total Health Risk																		**278**	**239**	**169**	**183**	**177**	**181**
FRESNO Fresno-1st Street	Acetaldehyde		2.29		1.89	1.40	0.67			1.50		1.43		11		9	7	3			7		7
	Benzene		2.42	1.34	1.35	1.44	1.24	0.79	1.00	0.83	0.80	0.73		224	124	125	133	115	73	92	76	74	68
	1,3-Butadiene		0.46	0.26	0.34	0.36	0.30	0.23	0.23	0.27	0.21	0.20		173	99	129	134	113	88	87	100	80	73
	Carbon Tetrachloride		0.12		0.11		0.10	0.08				0.10		32		28		26	21				25
	Chromium (Hexavalent)			0.21	0.15	0.14	0.22	0.10	0.11	0.10	0.10	0.13			31	22	21	33	16	16	15	15	20
	para-Dichlorobenzene			0.10	0.10	0.14	0.13	0.11	0.14			0.10			7	7	9	8	7	9			7
	Formaldehyde		2.32		1.64	2.01	2.41			3.42		3.56		17		12	15	18			25		26
	Methylene Chloride		0.62	0.54	0.69	0.59	0.58	0.50	0.52			0.50		2	2	2	2	2	2	2			2
	Perchloroethylene		0.14	0.10	0.10	0.06	0.07	0.04	0.04			0.06		6	4	4	2	3	2	2			2
	Diesel PM	No Monitoring Data Available																					
Total Health Risk														**465**	**267**	**338**	**323**	**321**	**209**	**208**	**223**	**169**	**230**

* Concentrations for Chromium (Hexavalent) are expressed as ng/m³, and concentrations for Diesel PM are expressed as ug/m³. Concentrations for all other TACs are expressed as ppb.
** Health Risk represents the number of excess cancer cases per million people based on a lifetime (70-year) exposure to the annual average concentration. Total Health Risk represents only those compounds listed in this table and only those with data for the year. There may be other significant compounds for which monitoring and/or health risk information are not available.

Table C-18

San Joaquin Valley Air Basin

COUNTY / SITE	TAC	Annual Average Concentration*											Health Risk**										
		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
STANISLAUS Modesto- I Street (Courthouse)	Acetaldehyde		1.51	1.37	1.75	1.44	0.51	1.17	1.25					7	7	8	7	2	6	6			
	Benzene																						
	1,3-Butadiene																						
	Carbon Tetrachloride																						
	Chromium (Hexavalent)			0.27	0.23	0.22	0.32	0.16	0.11						40	34	33	48	25	17			
	para-Dichlorobenzene																						
	Formaldehyde		1.43	1.32	1.82	1.86	2.16	2.58	2.43					11	10	13	14	16	19	18			
	Methylene Chloride																						
	Perchloroethylene																						
	Diesel PM	No Monitoring Data Available																					
Total Health Risk														18	57	55	54	66	50	41			
STANISLAUS Modesto- 14th Street	Acetaldehyde										1.65											8	
	Benzene	2.25	1.86	1.20	1.23	1.14	1.20	0.70	0.77	0.85	0.61		208	172	111	114	105	111	65	71	78	56	
	1,3-Butadiene	0.38	0.35	0.22	0.35	0.29	0.30	0.24	0.21	0.26	0.16		142	133	84	131	110	112	89	78	98	61	
	Carbon Tetrachloride	0.13	0.13		0.11		0.09	0.07		0.11			34	35		30		25	20		30		
	Chromium (Hexavalent)										0.10											15	
	para-Dichlorobenzene		0.11	0.10	0.12	0.10	0.11	0.10	0.15					7	7	8	7	7	7	10			
	Formaldehyde										3.09											23	
	Methylene Chloride	0.65	0.61	0.55	0.65	0.62	0.58	0.50	0.59	0.51			2	2	2	2	2	2	2	2	2		
	Perchloroethylene	0.15	0.15	0.12	0.11	0.09	0.05	0.04	0.05	0.04			6	6	5	4	3	2	2	2	1		
	Diesel PM	No Monitoring Data Available																					
Total Health Risk													392	355	209	289	227	259	185	163	209	163	
SAN JOAQUIN Stockton- Hazelton Street	Acetaldehyde	1.47	1.75	1.07	1.31	1.10		0.90	0.90	1.00	1.07	0.64	7	9	5	6	5		4	4	5	5	3
	Benzene	2.01	1.95	1.37		1.23	1.05	0.64	0.52	0.69	0.65	0.58	186	181	127		113	97	60	48	64	60	54
	1,3-Butadiene	0.34	0.32	0.22		0.28	0.25	0.21	0.18	0.21	0.18	0.16	126	121	82		106	94	77	68	77	68	58
	Carbon Tetrachloride	0.13	0.14				0.10	0.08		0.12		0.10	35	36				26	20		30		26
	Chromium (Hexavalent)			0.22	0.25	0.25		0.14			0.10	0.12			33	37	37		21			15	18
	para-Dichlorobenzene		0.10	0.10		0.10	0.11	0.10	0.11			0.11		7	7		7	7	7	7			7
	Formaldehyde	1.81	1.88	1.24	1.38	1.56		2.35	2.24	2.33	2.68	1.61	13	14	9	10	12		17	16	17	20	12
	Methylene Chloride	0.63	0.50	0.60		0.50	0.75	0.53	0.50	0.50	0.50	0.53	2	2	2		2	3	2	2	2	2	2
	Perchloroethylene	0.13	0.11	0.12		0.07	0.06	0.07	0.09	0.03		0.11	5	5	5		3	2	3	4	1		4
	Diesel PM	No Monitoring Data Available																					
Total Health Risk													374	375	270	53	285	229	211	149	196	170	184

* Concentrations for Chromium (Hexavalent) are expressed as ng/m^3, and concentrations for Diesel PM are expressed as ug/m^3. Concentrations for all other TACs are expressed as ppb.
** Health Risk represents the number of excess cancer cases per million people based on a lifetime (70-year) exposure to the annual average concentration. Total Health Risk represents only those compounds listed in this table and only those with data for the year. There may be other significant compounds for which monitoring and/or health risk information are not available.

Table C-18 (continued)

San Joaquin Valley Air Basin

COUNTY / SITE	TAC	Annual Average Concentration*											Health Risk**										
		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
BASIN SUMMARY	Acetaldehyde	1.94	1.84	1.38	1.73	1.29	0.54	1.28	1.19	1.30	1.56	1.09	9	9	7	8	6	3	6	6	6	8	5
	Benzene	2.45	2.11	1.36	1.32	1.33	1.16	0.73	0.71	0.76	0.69	0.63	227	196	126	122	123	107	68	66	71	64	58
	1,3-Butadiene	0.41	0.36	0.24	0.34	0.32	0.26	0.22	0.20	0.23	0.18	0.16	154	135	89	127	121	99	83	73	88	67	59
	Carbon Tetrachloride	0.13	0.13		0.11		0.10	0.08		0.11		0.10	34	34		29		26	20		30		25
	Chromium (Hexavalent)			0.23	0.21	0.19	0.28	0.13	0.11	0.10	0.10	0.12			34	31	29	42	20	16	15	15	18
	para-Dichlorobenzene		0.11	0.11	0.13	0.11	0.11	0.10	0.13			0.11		7	7	9	7	8	7	9			7
	Formaldehyde	2.45	1.81	1.46	1.67	1.80	2.10	2.96	2.77	2.86	3.44	2.61	18	13	11	12	13	15	22	20	21	25	19
	Methylene Chloride	0.76	0.59	0.55	0.76	0.59	0.61	0.54	0.53	0.52	0.50	0.53	3	2	2	3	2	2	2	2	2	2	2
	Perchloroethylene	0.13	0.13	0.10	0.47	0.07	0.07	0.07	0.06	0.04		0.08	5	5	4	19	3	3	3	2	2		3
	Diesel PM***	*(2.6)*					*(1.7)*					*(1.3)*	*(780)*					*(510)*					*(390)*
Average Basin Health Risk													450	401	280	360	304	305	231	194	235	181	196

* Concentrations for Chromium (Hexavalent) are expressed as ng/m^3, and concentrations for Diesel PM are expressed as ug/m^3. Concentrations for all other TACs are expressed as ppb.
** Health Risk represents the number of excess cancer cases per million people based on a lifetime (70-year) exposure to the annual average concentration. Total Health Risk represents only those compounds listed in this table and only those with data for the year. There may be other significant compounds for which monitoring and/or health risk information are not available.
*** The Diesel PM concentrations are estimates based on receptor modeling. Because data are not available for all years, Diesel PM is not included in the Average Basin Health Risk number.

Table C-18 (continued)

San Diego Air Basin

COUNTY / SITE	TAC	Annual Average Concentration*											Health Risk**										
		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
SAN DIEGO Chula Vista	Acetaldehyde	1.10	1.21	0.99	1.16	1.32	0.64	0.83	0.91	0.70	0.91	0.75	5	6	5	6	6	3	4	4	3	4	4
	Benzene	2.00	1.21	1.03	0.80	1.08	0.81		0.63	0.61		0.55	186	112	95	74	100	75		58	56		51
	1,3-Butadiene	0.28	0.18	0.18	0.23	0.26	0.21		0.16	0.15		0.14	105	69	69	85	98	77		61	57		51
	Carbon Tetrachloride	0.13	0.13		0.10		0.10					0.09	35	34		27		26					25
	Chromium (Hexavalent)			0.24	0.20	0.17	0.20	0.11	0.10	0.10	0.11	0.10			37	30	25	29	16	15	15	16	16
	para-Dichlorobenzene		0.10	0.11	0.13	0.12	0.11		0.13					7	7	8	8	7		8			
	Formaldehyde	1.26	1.30	1.10	1.46	2.08	1.81	2.10	2.37	2.00	2.49	2.14	9	10	8	11	15	13	15	17	15	18	16
	Methylene Chloride	0.58	0.59	0.81	1.01	0.57	0.57		0.62			0.65	2	2	3	3	2	2		2			2
	Perchloroethylene	0.24	0.23	0.21	0.14	0.13	0.15		0.10			0.08	9	9	8	6	5	6		4			3
	Diesel PM	No Monitoring Data Available																					
Total Health Risk													**351**	**249**	**232**	**250**	**259**	**238**	**35**	**169**	**146**	**38**	**168**
SAN DIEGO El Cajon-Redwood Avenue	Acetaldehyde	1.56	1.78	1.46	1.66			1.23			1.17	0.92	8	9	7	8			6			6	4
	Benzene	2.50	2.20	1.94	1.51		1.14	0.86	0.89	0.91	0.98	0.74	231	203	179	140		106	79	82	84	91	69
	1,3-Butadiene	0.39	0.33	0.33	0.40		0.28	0.25	0.24	0.24	0.24	0.18	145	125	125	150		105	95	88	90	90	68
	Carbon Tetrachloride	0.13	0.13				0.10	0.08				0.10	35	33				27	21				25
	Chromium (Hexavalent)			0.24	0.18			0.10	0.11		0.10	0.10			36	26			16	17		15	15
	para-Dichlorobenzene			0.12	0.13		0.12	0.11	0.13						8	8		8	7	8			
	Formaldehyde	2.01	1.76	1.42	2.06			3.14			2.84	2.32	15	13	10	15			23			21	17
	Methylene Chloride	0.59	1.07	1.87	1.25		0.70	0.61	0.52		0.52	0.87	2	4	7	4		2	2	2		2	3
	Perchloroethylene	0.33	0.31	0.32	0.26		0.35	0.17	0.15			0.10	13	12	13	10		14	7	6			4
	Diesel PM	No Monitoring Data Available																					
Total Health Risk													**449**	**399**	**385**	**361**		**262**	**256**	**203**	**174**	**225**	**205**
BASIN SUMMARY	Acetaldehyde	1.33	1.50	1.22	1.41	1.48	0.64	1.03	1.00	0.86	1.04	0.84	6	7	6	7	7	3	5	5	4	5	4
	Benzene	2.25	1.70	1.48	1.16	1.39	0.98	0.76	0.76	0.76	0.86	0.65	208	158	137	107	129	90	71	70	70	79	60
	1,3-Butadiene	0.33	0.26	0.26	0.31	0.31	0.24	0.21	0.20	0.20	0.22	0.16	125	97	97	117	115	91	78	75	74	83	60
	Carbon Tetrachloride	0.13	0.13		0.10		0.10	0.08				0.09	35	34		27		26	20				25
	Chromium (Hexavalent)			0.24	0.19	0.16	0.18	0.11	0.11	0.10	0.10	0.10			36	28	23	27	16	16	15	15	15
	para-Dichlorobenzene		0.10	0.11	0.13	0.15	0.12	0.11	0.13					7	8	8	10	8	7	8			
	Formaldehyde	1.64	1.53	1.26	1.76	2.25	2.13	2.62	2.62	2.27	2.67	2.23	12	11	9	13	17	16	19	19	17	20	16
	Methylene Chloride	0.59	0.83	1.34	1.13	0.73	0.63	0.59	0.57		0.53	0.76	2	3	5	4	3	2	2	2		2	3
	Perchloroethylene	0.28	0.27	0.26	0.20	0.21	0.25	0.15	0.13			0.09	11	11	11	8	8	10	6	5			4
	Diesel PM***	*(2.9)*					*(1.9)*					*(1.4)*	*(870)*					*(570)*					*(420)*
Average Basin Health Risk													**399**	**328**	**309**	**319**	**312**	**273**	**224**	**200**	**180**	**204**	**187**

* Concentrations for Chromium (Hexavalent) are expressed as ng/m^3, and concentrations for Diesel PM are expressed as ug/m^3. Concentrations for all other TACs are expressed as ppb.
** Health Risk represents the number of excess cancer cases per million people based on a lifetime (70-year) exposure to the annual average concentration. Total Health Risk represents only those compounds listed in this table and only those with data for the year. There may be other significant compounds for which monitoring and/or health risk information are not available.
*** The Diesel PM concentrations are estimates based on receptor modeling. Because data are not available for all years, Diesel PM is not included in the Average Basin Health Risk number.

Table C-19

Sacramento Valley Air Basin

COUNTY / SITE	TAC	Annual Average Concentration*											Health Risk**										
		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
BUTTE Chico-Manzanita	Acetaldehyde				1.55	1.11	0.54	1.15	1.17	0.96	1.41	0.89				8	5	3	6	6	5	7	4
	Benzene				1.10	1.14	0.85	0.67		0.55	0.64	0.52				102	106	78	62		51	59	48
	1,3-Butadiene				0.30	0.25	0.21	0.22		0.17	0.15	0.14				111	94	77	81		64	56	54
	Carbon Tetrachloride				0.11		0.10	0.08								29		26	21				
	Chromium (Hexavalent)				0.15	0.13	0.16	0.10	0.10	0.10	0.10	0.10				23	19	24	16	15	15	15	15
	para-Dichlorobenzene				0.10	0.13	0.10	0.12								7	8	7	8				
	Formaldehyde				2.08	1.78	2.04	2.99	3.42	2.63	4.15	2.76				15	13	15	22	25	19	31	20
	Methylene Chloride				0.81	0.50	0.53	0.58								3	2	2	2				
	Perchloroethylene				0.06	0.27	0.05	0.05								2	11	2	2				
	Diesel PM	No Monitoring Data Available																					
Total Health Risk																**300**	**258**	**234**	**220**	**46**	**154**	**168**	**141**
BUTTE Chico-Salem Street	Acetaldehyde	1.27											6										
	Benzene	1.96	1.91										182	177									
	1,3-Butadiene	0.40	0.36										151	136									
	Carbon Tetrachloride	0.12	0.12										32	33									
	Chromium (Hexavalent)																						
	para-Dichlorobenzene																						
	Formaldehyde	1.49											11										
	Methylene Chloride	0.53	0.57										2	2									
	Perchloroethylene	0.05	0.05										2	2									
	Diesel PM	No Monitoring Data Available																					
Total Health Risk													**386**	**350**									
PLACER Roseville-North Sunrise Blvd.	Acetaldehyde					0.96	0.25	0.90	0.93	0.88		0.77					5	1	4	4	4		4
	Benzene					0.91	0.75	0.44	0.46	0.45	0.48	0.39					84	70	40	42	42	44	36
	1,3-Butadiene					0.19	0.17	0.14	0.12	0.14	0.11	0.10					73	63	51	46	52	40	36
	Carbon Tetrachloride						0.10	0.08				0.09						26	20				25
	Chromium (Hexavalent)					0.13	0.19	0.11	0.10	0.10	0.10	0.10					19	29	16	15	15	15	15
	para-Dichlorobenzene					0.28	0.17	0.10	0.15			0.10					19	11	7	10			7
	Formaldehyde					1.71	1.78	2.52	2.42	2.42		2.25					13	13	19	18	18		17
	Methylene Chloride					0.82	0.54	0.50	0.50			0.52					3	2	2	2			2
	Perchloroethylene					0.07	0.05	0.06	0.06			0.05					3	2	2	3			2
	Diesel PM	No Monitoring Data Available																					
Total Health Risk																	**219**	**217**	**161**	**140**	**131**	**99**	**144**

* Concentrations for Chromium (Hexavalent) are expressed as ng/m³, and concentrations for Diesel PM are expressed as ug/m³. Concentrations for all other TACs are expressed as ppb.
** Health Risk represents the number of excess cancer cases per million people based on a lifetime (70-year) exposure to the annual average concentration. Total Health Risk represents only those compounds listed in this table and only those with data for the year. There may be other significant compounds for which monitoring and/or health risk information are not available.

Table C-20

Sacramento Valley Air Basin

COUNTY / SITE	TAC	Annual Average Concentration*											Health Risk**										
		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
SACRAMENTO Citrus Heights-Sunrise Blvd.	Acetaldehyde	1.32											6										
	Benzene	2.08	1.85	1.41									192	171	130								
	1,3-Butadiene	0.35	0.30	0.31									133	114	115								
	Carbon Tetrachloride	0.12	0.12										33	32									
	Chromium (Hexavalent)																						
	para-Dichlorobenzene			0.11											7								
	Formaldehyde	1.66											12										
	Methylene Chloride	0.76	0.54	0.50									3	2	2								
	Perchloroethylene	0.10	0.09	0.08									4	4	3								
	Diesel PM	No Monitoring Data Available																					
Total Health Risk													383	323	257								
BASIN SUMMARY	Acetaldehyde	1.29			1.37	1.04	0.39	1.03	1.05	0.92	1.23	0.83	6			7	5	2	5	5	5	6	4
	Benzene	2.02	1.88	1.35	1.00	1.02	0.80	0.56	0.55	0.50	0.56	0.45	187	174	125	92	95	74	51	51	47	52	42
	1,3-Butadiene	0.38	0.33	0.28	0.29	0.22	0.19	0.18	0.16	0.15	0.13	0.12	142	125	106	108	83	70	66	60	58	48	45
	Carbon Tetrachloride	0.12	0.12		0.11		0.10	0.08				0.09	33	32		29		26	21				25
	Chromium (Hexavalent)			0.17	0.14	0.13	0.18	0.11	0.10	0.10	0.10	0.10			26	21	19	26	16	15	15	15	15
	para-Dichlorobenzene			0.11	0.10	0.20	0.14	0.11	0.14			0.10			7	7	14	9	7	10			7
	Formaldehyde	1.57			1.77	1.75	1.91	2.76	2.92	2.52	3.61	2.51	12			13	13	14	20	22	19	27	18
	Methylene Chloride	0.65	0.56	0.55	0.98	0.66	0.53	0.54	0.52		0.60	0.57	2	2	2	3	2	2	2	2		2	2
	Perchloroethylene	0.07	0.07	0.06	0.05	0.17	0.05	0.06	0.05			0.06	3	3	3	2	7	2	2	2			2
	Diesel PM***	*(2.5)*					*(1.6)*					*(1.2)*	*(750)*					*(480)*					*(360)*
Average Basin Health Risk													385	336	269	282	238	225	190	167	144	150	160

* Concentrations for Chromium (Hexavalent) are expressed as ng/m^3, and concentrations for Diesel PM are expressed as ug/m^3. Concentrations for all other TACs are expressed as ppb.

** Health Risk represents the number of excess cancer cases per million people based on a lifetime (70-year) exposure to the annual average concentration. Total Health Risk represents only those compounds listed in this table and only those with data for the year. There may be other significant compounds for which monitoring and/or health risk information are not available.

*** The Diesel PM concentrations are estimates based on receptor modeling. Because data are not available for all years, Diesel PM is not included in the Average Basin Health Risk number.

Table C-20 (continued)

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APPENDIX D

Surface Area, Population, and Average Daily Vehicle Miles Traveled

Appendix D: *Surface Area, Population, and Average Daily Vehicle Miles Traveled*

List of Tables

List of Tables (continued)

List of Tables (continued)

List of Tables (continued)

List of Tables (continued)

Introduction

This appendix provides information on the square mile surface area, population, and average number of vehicle miles traveled (VMT) each day in California. The trend data for population and daily VMT cover the period 1981 through 2000. Data are listed for each air basin, for each county within each air basin, and for the State as a whole. In cases where a county is split between two or more air basins, the data reflect only that portion of the county within the respective air basin. It is important to note that the average daily VMT listed in the following tables has been divided by 1000.

The population data were derived from reports developed by the California Department of Finance (DOF), Demographic Research Unit. Split county fractions for 1990 and 2000 were derived using census 1990 and 2000 data. County and air basin fractions for years not listed above were interpolated. In addition, the population data reflect an adjustment for the estimated census undercount.

The data for the average daily VMT are from the Motor Vehicle Emission Inventory Model EMFAC 2001 version 2.08. Generally, estimates of VMT by county used in EMFAC 2001 are calculated based on the number of vehicles registered in the county and mileage accrual rates. Vehicle registration data for each county are obtained from the Department of Motor Vehicles. Mileage accrual rates are derived from odometer mileage differences obtained from the Bureau of Automotive Repair Smog Check database. For counties that are served by Local Planning Agencies, the VMT used in EMFAC 2001 are adjusted to reflect the VMT estimates provided by the Local Planning Agencies. Sub-county estimates are produced by ARB staff to model counties in two or more air basins, as well as sub-county implementation of the Enhanced Inspection and Maintenance program. More detailed information about the methodologies used in developing both the population and VMT trends is available from the ARB staff (916/322-6021).

Great Basin Valleys Air Basin
Surface Area = 13880 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	28800	29800	29700	28900	28800	28600	28600	29000	29300	30380	30550	30710	31210	31690	31440	31780	31960	32060	32240	32570
Avg. Daily VMT/1000	706	703	702	758	776	864	859	911	935	934	918	878	894	893	892	894	882	884	912	937

Table D-1

Alpine County
Surface Area = 723 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	1100	1100	1100	1100	1100	1100	1100	1100	1100	1130	1150	1160	1160	1140	1190	1230	1260	1210	1190	1220
Avg. Daily VMT/1000	26	26	26	27	28	30	32	34	36	36	36	36	36	36	37	39	39	39	40	41

Table D-2

Inyo County
Surface Area = 10130 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	18400	19000	19000	18600	18500	18300	18200	18400	18500	18800	18800	18750	18750	18850	18650	18650	18650	18550	18300	18200
Avg. Daily VMT/1000	400	409	411	417	409	477	472	508	524	540	530	513	526	528	529	536	534	534	551	565

Table D-3

Mono County
Surface Area = 3027 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	9300	9700	9600	9200	9200	9200	9300	9500	9700	10450	10600	10800	11300	11700	11600	11900	12050	12300	12750	13150
Avg. Daily VMT/1000	280	268	265	314	339	357	355	369	375	358	352	329	332	329	326	319	309	311	321	331

Table D-4

Lake County Air Basin

Surface Area = 1260 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	39400	40800	42600	44700	46600	47300	48300	49200	50300	52100	54100	55400	56400	56900	57400	57300	57700	57600	58200	59100
Avg. Daily VMT/1000	769	898	949	972	1079	1142	1121	1180	1235	1263	1311	1363	1412	1445	1481	1486	1472	1467	1503	1545

Table D-5

Lake County

Surface Area = 1260 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	39400	40800	42600	44700	46600	47300	48300	49200	50300	52100	54100	55400	56400	56900	57400	57300	57700	57600	58200	59100
Avg. Daily VMT/1000	769	898	949	972	1079	1142	1121	1180	1235	1263	1311	1363	1412	1445	1481	1486	1472	1467	1503	1545

Table D-6

Lake Tahoe Air Basin

Surface Area = 500 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	37100	37300	36800	36500	36800	37100	37500	38400	38900	40000	41500	42400	43300	43600	44100	44600	45200	45600	46400	46800
Avg. Daily VMT/1000	643	638	674	698	782	806	816	867	887	896	947	970	996	1015	1036	1037	1028	1030	1058	1082

Table D-7

El Dorado County

Surface Area = 350 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	28300	28500	28000	27700	28000	28200	28500	29300	29700	30500	31600	32200	32900	33000	33200	33400	33700	33900	34300	34500
Avg. Daily VMT/1000	450	443	463	478	510	526	539	568	574	566	603	609	619	626	634	627	616	615	630	643

Table D-8

A portion of El Dorado County lies within the Mountain Counties Air Basin.

Placer County

Surface Area = 150 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	8800	8800	8800	8800	8800	8900	9000	9100	9200	9500	9900	10200	10400	10600	10900	11200	11500	11700	12100	12300
Avg. Daily VMT/1000	193	195	211	220	272	280	277	299	313	330	344	361	377	389	402	410	412	415	428	439

Table D-9

Portions of Placer County lie within the Mountain Counties and Sacramento Valley Air Basins.

Mojave Desert Air Basin

Surface Area = 25966 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	389900	415800	441500	468100	497800	531500	568600	608100	650200	695900	721800	739800	749600	757100	764100	772600	785800	798400	816000	833600
Avg. Daily VMT/1000	4517	4797	5441	7300	7922	8932	10971	11768	12651	16678	16996	17229	17605	17928	18287	18655	18887	19390	20016	20503

Table D-10

Kern County

Surface Area = 2570 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	87300	90300	93100	95700	98700	101200	103700	106500	109400	114500	117300	118800	118800	118500	117500	116500	116200	114800	114800	115000
Avg. Daily VMT/1000	778	823	872	1159	1243	1312	1437	1523	1588	1594	1693	1682	1750	1753	1775	1793	1773	1829	1889	1949

Table D-11

A portion of Kern County lies within the San Joaquin Valley Air Basin.

Los Angeles County

Surface Area = 1300 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	111900	124700	137800	151500	165200	180100	194800	208900	223800	239100	246700	253700	258400	263200	268100	272500	279300	286900	295700	305100
Avg. Daily VMT/1000	2044	2099	2516	3115	3304	3840	5441	5800	6103	6270	6204	6166	6141	6113	6086	6126	6136	6309	6513	6567

Table D-12

A portion of Los Angeles County lies within the South Coast Air Basin.

Riverside County

Surface Area = 3116 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	1110	11500	12000	12600	13300	14100	15100	16100	17400	19000	20300	21000	21700	22200	22600	23100	23900	24500	25400	26200
Avg. Daily VMT/1000	71	76	81	108	116	126	138	151	160	235	249	262	279	298	317	334	348	361	373	390

Table D-13

Portions of Riverside County lie within the Salton Sea and South Coast Air Basins.

San Bernardino County
Surface Area = 18980 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	179600	189300	198600	208300	220600	236100	255000	276600	299600	323300	337500	346300	350700	353200	355900	360500	366400	372200	380100	387300
Avg. Daily VMT/1000	1624	1799	1972	2918	3259	3654	3955	4294	4800	8579	8850	9119	9435	9764	10109	10402	10630	10891	11241	11597

Table D-14

A portion of San Bernardino County lies within the South Coast Air Basin.

Mountain Counties Air Basin
Surface Area = 12497 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	243900	253400	259100	266500	277700	288600	302400	318000	332700	352250	366200	374130	382150	386100	389810	393500	400540	403850	407950	412760
Avg. Daily VMT/1000	5496	5622	5936	6542	7101	7619	8071	8854	9230	9373	9561	9747	10038	10228	10426	10444	10344	10530	10839	11155

Table D-15

Amador County
Surface Area = 593 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	20500	20800	21200	21800	22600	23300	24500	26900	28900	30900	32050	32550	33250	33550	33700	34100	34800	34400	35050	35450
Avg. Daily VMT/1000	616	624	647	676	722	777	840	899	925	994	1003	1049	1081	1098	1119	1107	1077	1083	1113	1149

Table D-16

Calaveras County
Surface Area = 1032 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	22200	23300	24000	24700	25500	26700	28200	29400	31300	33050	35100	36450	37250	38050	38750	38950	40300	40050	40850	41000
Avg. Daily VMT/1000	595	604	627	690	698	752	826	894	939	988	981	1057	1100	1134	1166	1143	1110	1125	1158	1209

Table D-17

El Dorado County
Surface Area = 1476 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	62500	65400	66900	69200	72800	76500	81000	86700	92100	99200	103800	106600	109900	111600	113300	115000	117500	119500	121800	123800
Avg. Daily VMT/1000	1353	1405	1507	1653	1834	1983	2167	2412	2582	2314	2413	2475	2566	2641	2718	2788	2836	2934	3027	3120

Table D-18

A portion of El Dorado County lies within the Lake Tahoe Air Basin.

Mariposa County
Surface Area = 1455 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	11700	11900	12100	12400	12700	12900	13100	13500	13800	14800	15350	15950	16350	16550	16650	16750	16900	17050	17100	17300
Avg. Daily VMT/1000	256	254	275	288	304	325	336	355	387	442	451	463	475	486	495	478	457	462	475	487

Table D-19

Nevada County
Surface Area = 1160 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	56800	59700	61300	63200	65700	68100	71000	73900	76400	80300	83300	84600	85900	86700	87900	88900	90100	91100	91600	93000
Avg. Daily VMT/1000	1203	1240	1286	1529	1713	1758	1714	1861	1965	2139	2178	2180	2229	2252	2278	2281	2256	2302	2370	2434

Table D-20

Placer County
Surface Area = 958 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	12800	13400	13900	14600	15400	16200	17100	18200	19300	20800	21300	21500	21700	21700	22000	22100	22200	22300	22500	22400
Avg. Daily VMT/1000	248	254	271	333	370	391	415	447	429	418	439	453	474	489	505	521	533	541	557	571

Table D-21

Portions of Placer County lie within the Lake Tahoe and Sacramento Valley Air Basins.

Plumas County
Surface Area = 975 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	18200	18600	18400	18500	19000	19100	19400	19700	19700	20200	20600	21150	21250	21100	21100	20950	21200	21050	21000	21000
Avg. Daily VMT/1000	322	326	356	372	388	435	456	500	526	554	568	575	593	598	603	623	633	637	657	667

Table D-22

Sierra County
Surface Area = 2569 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	3200	3300	3300	3300	3300	3300	3300	3400	3300	3400	3400	3430	3550	3550	3610	3650	3640	3900	3550	3610
Avg. Daily VMT/1000	57	58	61	66	69	74	79	86	91	93	91	88	90	89	88	92	94	94	97	99

Table D-23

Tuolumne County
Surface Area = 2279 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	36000	37000	38000	38800	40700	42500	44800	46300	47900	49600	51300	51900	53000	53300	52800	53100	53900	54500	54500	55200
Avg. Daily VMT/1000	846	857	906	935	1003	1124	1238	1400	1386	1431	1437	1407	1430	1441	1454	1411	1348	1352	1385	1419

Table D-24

North Central Coast Air Basin
Surface Area = 5160 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	533600	544500	557400	569600	581900	594500	605100	615200	627700	642700	653300	663450	666050	655600	659400	662600	686900	698400	711400	722500
Avg. Daily VMT/1000	9806	10192	11076	11849	13171	13835	14311	15240	16000	16442	16351	16259	16503	16537	16656	16840	16782	17268	17776	18125

Table D-25

Monterey County
Surface Area = 3320 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	309500	316400	324400	332000	337800	344300	349200	353900	357700	368800	377000	383000	382600	369100	368700	368400	386900	393800	401700	408700
Avg. Daily VMT/1000	6213	6442	6937	7443	8121	8410	8758	9319	9788	10057	10021	9933	10066	10051	10094	10277	10319	10615	10933	11158

Table D-26

San Benito County
Surface Area = 1400 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	26800	27700	28500	29700	31000	32600	33900	35400	37300	38400	39300	41150	42250	43400	45400	47000	49400	51200	53100	54500
Avg. Daily VMT/1000	633	656	719	798	907	953	1012	1093	1185	1232	1245	1271	1316	1332	1360	1370	1352	1416	1460	1499

Table D-27

Santa Cruz County
Surface Area = 440 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	197300	200400	204500	207900	213100	217600	222000	225900	232700	235500	237000	239300	241200	243100	245300	247200	250600	253400	256600	259300
Avg. Daily VMT/1000	2960	3094	3420	3608	4143	4472	4541	4828	5027	5153	5085	5055	5121	5154	5202	5193	5111	5237	5383	5468

Table D-28

North Coast Air Basin

Surface Area = 12270 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	255500	256800	258500	261000	264600	268300	272300	278500	283500	294350	300400	304050	306800	307050	307900	308700	312100	310950	311850	313950
Avg. Daily VMT/1000	5347	5421	5823	6070	6567	6991	7260	7717	8167	8615	8562	8513	8738	8831	8960	8927	8759	8819	9056	9210

Table D-29

Del Norte County

Surface Area = 1000 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	19600	19400	19600	19500	19800	20200	20700	21600	21100	25000	27100	27800	28050	28250	28250	28150	29000	28300	27850	28250
Avg. Daily VMT/1000	348	322	350	359	407	438	454	503	548	575	581	562	579	584	590	571	540	535	549	565

Table D-30

Humboldt County

Surface Area = 3590 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	113300	112700	112300	113000	113400	114500	115500	117600	119900	122600	124400	126100	127200	126700	126900	127000	127900	126900	127100	127700
Avg. Daily VMT/1000	2094	2062	2197	2248	2404	2568	2662	2781	2941	3108	3110	3062	3115	3120	3145	3141	3086	3081	3157	3194

Table D-31

Mendocino County

Surface Area = 3510 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	70200	71500	72500	73600	75200	76300	77500	78700	80400	83000	84100	84400	84900	85000	85200	85600	86500	86400	86800	87400
Avg. Daily VMT/1000	1246	1309	1411	1461	1572	1640	1746	1894	1996	2134	2089	2086	2163	2211	2262	2263	2227	2249	2311	2363

Table D-32

Sonoma County
Surface Area = 980 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	39900	40700	41500	42100	43200	44400	45800	47300	48800	50500	51500	52300	53100	53400	53900	54400	55300	56000	56900	57500
Avg. Daily VMT/1000	1421	1508	1637	1761	1920	2044	2099	2203	2330	2438	2439	2457	2524	2563	2610	2594	2554	2613	2690	2734

Table D-33

A portion of Sonoma County lies within the San Francisco Bay Area Air Basin.

Trinity County
Surface Area = 3190 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	12500	12500	12600	12800	13000	12900	12800	13300	13300	13250	13300	13450	13550	13700	13650	13550	13400	13350	13200	13100
Avg. Daily VMT/1000	238	220	228	241	264	301	299	336	352	360	343	346	357	353	353	358	352	341	349	354

Table D-34

Northeast Plateau Air Basin

Surface Area = 14920 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	73900	75600	75900	76500	76900	76900	78700	80200	80900	82825	83750	84150	84900	85100	85100	87850	90000	88600	88350	89900
Avg. Daily VMT/1000	1374	1376	1484	1511	1601	1695	1824	1994	2158	2231	2275	2352	2460	2461	2487	2361	2169	2149	2213	2251

Table D-35

Lassen County

Surface Area = 4560 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	23000	24000	24200	24600	24800	25400	27000	27700	27400	28250	28750	28900	29200	29150	29300	32700	34450	33900	34050	35600
Avg. Daily VMT/1000	348	345	394	396	420	433	472	524	565	590	601	675	694	698	706	702	685	682	705	720

Table D-36

Modoc County

Surface Area = 4100 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	9200	9400	9600	9700	9600	9400	9400	9400	9600	9925	10000	10150	10150	10200	10150	10050	10150	9750	9550	9550
Avg. Daily VMT/1000	141	148	160	166	172	179	190	198	208	226	227	231	243	248	253	251	242	234	243	250

Table D-37

Siskiyou County

Surface Area = 6260 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	41700	42200	42100	42200	42500	42100	42300	43100	43900	44650	45000	45100	45550	45750	45650	45100	45400	44950	44750	44750
Avg. Daily VMT/1000	885	883	930	949	1009	1083	1162	1272	1385	1415	1447	1446	1523	1515	1528	1408	1242	1233	1265	1281

Table D-38

Sacramento Valley Air Basin
Surface Area = 15043 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	1572400	1617200	1652100	1682400	1725200	1770500	1827600	1887700	1945600	2024300	2088600	2124900	2152200	2168600	2186950	2209450	2242050	2280050	2327450	2367050
Avg. Daily VMT/1000	29136	30138	32933	34486	37592	40134	43408	46467	49082	48490	49309	49803	51004	51495	52163	52847	52743	54180	55702	56752

Table D-39

Butte County
Surface Area = 1670 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	152700	156500	159000	161700	165800	168700	172500	177900	181500	187900	191900	194700	196400	198600	200400	200300	202000	202600	203800	205400
Avg. Daily VMT/1000	2517	2591	2771	2963	3230	3380	3640	3931	4145	4395	4378	4319	4415	4476	4536	4420	4266	4300	4411	4496

Table D-40

Colusa County
Surface Area = 1150 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	13700	14300	14500	14500	15100	15300	15300	15900	16500	17000	17350	17600	17900	18050	18300	18550	18850	18800	18950	19150
Avg. Daily VMT/1000	327	335	359	376	399	418	423	453	479	496	524	520	536	530	530	529	512	518	535	550

Table D-41

Glenn County
Surface Area = 1320 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	22700	22900	23400	23300	23600	23700	23700	24300	25000	25700	26150	26500	26600	26550	26950	26800	26900	26750	26700	26900
Avg. Daily VMT/1000	503	517	564	593	623	669	681	730	768	709	719	748	776	764	763	719	652	653	670	685

Table D-42

Placer County
Surface Area = 420 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	103200	106600	108900	112500	116500	121100	126500	132300	138400	147100	154900	161400	167200	172500	180500	187000	194300	201400	210900	217100
Avg. Daily VMT/1000	2444	2509	2676	2747	3033	3332	3538	3865	4068	3874	4052	4193	4386	4525	4672	4825	4929	5215	5375	5497

Table D-43

Portions of Placer County lie within the Lake Tahoe and Mountain Counties Air Basins.

Sacramento County
Surface Area = 970 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	823200	849300	870400	887600	909000	937000	970900	1001800	1032500	1070500	1102400	1117500	1130600	1134300	1137000	1149700	1164200	1190700	1219500	1242000
Avg. Daily VMT/1000	15466	16190	17935	18606	20136	21340	23312	24766	26106	25311	25766	26022	26556	26809	27130	27653	27771	28490	29296	29793

Table D-44

Shasta County
Surface Area = 3793 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	122400	123800	125200	127800	131200	133300	136400	140400	144100	151000	156600	159100	160500	161200	161600	161700	162800	163500	163600	165000
Avg. Daily VMT/1000	2214	2190	2386	2595	2805	3019	3192	3448	3672	3901	3940	4018	4068	4029	4006	3982	3888	3899	3994	4068

Table D-45

Solano County
Surface Area = 470 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	67900	70800	73100	74700	77400	81200	85400	89600	94500	100600	105200	107400	109600	110600	110800	111700	114100	116600	120000	122900
Avg. Daily VMT/1000	1059	1083	1155	1240	1361	1486	1628	1776	1935	2145	2154	2170	2242	2283	2334	2420	2476	2573	2649	2703

Table D-46

A portion of Solano County lies within the San Francisco Bay Area Air Basin.

Sutter County
Surface Area = 600 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	55100	56600	58200	58100	59100	60000	61300	62600	63800	66500	69100	71200	72900	74200	75300	76100	77500	77900	79100	80200
Avg. Daily VMT/1000	927	952	1010	1104	1192	1264	1342	1433	1505	1613	1636	1623	1673	1712	1751	1772	1769	1807	1857	1921

Table D-47

Tehama County
Surface Area = 2980 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	41100	42100	43000	43900	45000	45600	46700	47900	49100	51000	52700	53800	54100	54700	55300	55300	55900	56000	56200	56700
Avg. Daily VMT/1000	721	727	788	784	834	985	1060	1166	1249	1305	1315	1295	1328	1315	1312	1274	1209	1227	1260	1279

Table D-48

Yolo County
Surface Area = 1030 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	119100	121800	123300	124600	128000	129500	132800	137700	142000	146600	150400	152700	153300	154700	157700	159600	162400	164100	167600	170900
Avg. Daily VMT/1000	2259	2338	2519	2691	3114	3326	3622	3855	4076	3624	3709	3705	3827	3854	3929	4040	4062	4286	4412	4482

Table D-49

Yuba County
Surface Area = 640 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	51300	52500	53100	53700	54500	55100	56100	57300	58200	60400	61900	63000	63100	63200	63100	62700	63100	61700	61100	60800
Avg. Daily VMT/1000	699	706	770	787	865	915	970	1044	1079	1117	1116	1190	1197	1198	1200	1213	1209	1212	1243	1278

Table D-50

Salton Sea Air Basin

Surface Area = 6374 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	242600	249900	257200	265600	276400	288600	302900	319600	338600	363900	382900	399300	413500	421900	430200	437900	446100	453300	465600	479200
Avg. Daily VMT/1000	5425	5627	6178	6669	7208	7818	8319	9396	10507	11203	11534	11865	12226	12522	12868	13220	13414	13854	14245	14658

Table D-51

Imperial County

Surface Area = 4240 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	96800	98100	99200	99700	101400	102700	104200	106600	109200	114000	119000	126500	133800	137000	139500	141300	142300	142500	144100	149000
Avg. Daily VMT/1000	2267	2360	2517	2527	2588	2774	2939	3210	3517	3638	3715	3792	3883	3887	3905	3949	3879	3868	3979	4090

Table D-52

Riverside County

Surface Area = 2134 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	145800	151800	158000	165900	175000	185900	198700	213000	229400	249900	263900	272800	279700	284900	290700	296600	303800	310800	321500	330200
Avg. Daily VMT/1000	3158	3267	3661	4142	4620	5044	5380	6186	6990	7565	7819	8073	8343	8635	8963	9271	9535	9986	10266	10568

Table D-53

Portions of Riverside County lie within the Mojave Desert and South Coast Air Basins.

San Diego Air Basin
Surface Area = 4260 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	1963900	2008100	2047400	2100700	2155500	2230700	2310200	2392300	2486100	2566400	2612600	2644600	2648500	2657700	2657800	2666500	2719200	2764600	2814500	2856300
Avg. Daily VMT/1000	34975	36762	39337	43612	47597	52269	56715	60801	63271	66230	66463	66618	67125	67603	68152	68591	68777	71275	73362	73908

Table D-54

San Diego County
Surface Area = 4260 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	1963900	2008100	2047400	2100700	2155500	2230700	2310200	2392300	2486100	2566400	2612600	2644600	2648500	2657700	2657800	2666500	2719200	2764600	2814500	2856300
Avg. Daily VMT/1000	34975	36762	39337	43612	47597	52269	56715	60801	63271	66230	66463	66618	67125	67603	68152	68591	68777	71275	73362	73908

Table D-55

San Francisco Bay Area Air Basin

Surface Area = 5545 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	5259800	5330200	5418900	5486300	5573500	5649200	5716800	5806300	5910900	6011100	6080600	6158700	6230600	6257200	6276900	6330100	6438700	6529400	6613600	6705400
Avg. Daily VMT/1000	97589	101190	105824	111666	117565	123001	126495	130569	134108	137234	138554	139561	141030	142493	144386	145976	147843	153167	157573	159273

Table D-56

Alameda County

Surface Area = 730 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	1151100	1166800	1186300	1203400	1222600	1242300	1256200	1278400	1299300	1313400	1328200	1344300	1354000	1357900	1359600	1367900	1398500	1421900	1443800	1466900
Avg. Daily VMT/1000	21069	21815	22895	24398	25619	26746	27440	28321	29032	29747	29673	29552	29568	29570	29689	30080	30305	31553	32457	32845

Table D-57

Contra Costa County

Surface Area = 730 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	677800	689300	700600	709100	722200	737300	752500	772900	797400	820400	837100	853600	868600	877000	883500	893600	912700	930800	948700	963000
Avg. Daily VMT/1000	13335	13868	14735	15846	16703	17688	18362	19023	19637	20079	20456	20673	20951	21210	21489	21781	21961	22811	23448	23780

Table D-58

Marin County

Surface Area = 520 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	225800	225000	225000	223600	222600	223800	224200	225400	229500	232700	235800	238200	239400	240000	240500	239900	243500	244800	247300	250100
Avg. Daily VMT/1000	4150	4324	4540	4823	5130	5389	5573	5741	5909	6057	6085	6067	6091	6105	6139	6157	6196	6403	6585	6652

Table D-59

Napa County
Surface Area = 790 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	101900	103300	103700	104000	104900	106200	106900	108200	110200	113500	114800	116700	117800	118300	119000	119800	121600	122600	124300	125800
Avg. Daily VMT/1000	1561	1632	1708	1775	1873	2051	2105	2163	2226	2274	2364	2444	2533	2617	2708	2765	2789	2852	2930	3000

Table D-60

San Francisco County
Surface Area = 45 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	702400	711000	720200	729200	744000	754200	752600	746600	740900	744400	745500	749100	758900	758400	753200	756000	760700	768700	776300	787500
Avg. Daily VMT/1000	9131	9406	9721	10042	10588	10915	11033	11291	11477	11760	11762	11794	11768	11787	11898	11908	11835	12327	12659	12662

Table D-61

San Mateo County
Surface Area = 450 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	598900	602400	612600	619400	625500	627700	634100	642200	651200	660100	665300	672700	676900	680100	684800	688400	699100	704600	709800	717900
Avg. Daily VMT/1000	12836	13261	13854	14617	15370	16172	16653	17192	17610	17954	18252	18489	18810	19152	19579	19697	20763	20895	21573	21678

Table D-62

Santa Clara County
Surface Area = 1300 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	1343700	1363200	1391000	1411400	1433200	1442400	1456900	1480000	1509300	1528600	1539400	1559800	1581800	1588900	1597400	1621800	1648800	1673000	1688100	1709500
Avg. Daily VMT/1000	27036	27951	28916	30381	31845	32916	33757	34735	35587	36308	36712	37134	37689	38220	38847	39339	39627	41484	42651	43102

Table D-63

Solano County
Surface Area = 360 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	182800	188900	193400	195800	201000	208900	217900	226600	236700	249900	258800	261700	264400	264300	262400	261900	265100	268300	273500	277400
Avg. Daily VMT/1000	3655	3846	4075	4240	4512	4809	5024	5290	5567	5765	5755	5725	5720	5719	5714	5845	5934	6134	6313	6469

Table D-64

A portion of Solano County lies within the Sacramento Valley Air Basin.

Sonoma County
Surface Area = 620 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	275400	280300	286100	290400	297500	306400	315500	326000	336400	348100	355700	362600	368800	372300	376500	380800	388700	394700	401800	407300
Avg. Daily VMT/1000	4816	5087	5380	5544	5925	6315	6548	6813	7063	7290	7495	7683	7900	8113	8323	8404	8433	8708	8957	9085

Table D-65

A portion of Sonoma County lies within the North Coast Air Basin.

San Joaquin Valley Air Basin
Surface Area = 24850 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	2094800	2151300	2215700	2274700	2340200	2399400	2468100	2545600	2622400	2731500	2828000	2899100	2952100	2991700	3033800	3063100	3109700	3144100	3200100	3259800
Avg. Daily VMT/1000	34839	36238	38949	40717	44464	47444	51004	54460	57105	62591	64443	66088	68366	70557	72964	75009	76469	77891	80035	82372

Table D-66

Fresno County
Surface Area = 5970 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	545300	558300	573100	588900	600800	611600	627900	646900	669000	694500	718400	737800	750900	759400	773000	781900	790100	795000	804200	816400
Avg. Daily VMT/1000	8339	8816	9609	9905	10600	11196	12351	13096	13728	14321	14925	15375	16029	16448	16929	17256	17670	17940	18408	18920

Table D-67

Kern County
Surface Area = 5580 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	342100	354000	364900	374900	386800	396700	406500	417300	428700	448700	469100	485500	495900	505800	512800	520000	530300	536500	549300	563500
Avg. Daily VMT/1000	7150	7468	7972	8346	9071	9567	10004	10585	11023	12427	12519	12655	12847	13397	14001	14604	15054	15426	15904	16403

Table D-68

A portion of Kern County lies within the Mojave Desert Air Basin.

Kings County
Surface Area = 1400 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	78200	80200	82800	84500	86500	87100	88900	95700	101400	105500	109300	112000	114500	116600	118500	118700	120300	125800	129800	134500
Avg. Daily VMT/1000	989	1057	1129	1166	1254	1335	1525	1611	1694	1827	2043	2232	2457	2662	2875	2919	2920	2984	3046	3114

Table D-69

Madera County
Surface Area = 2150 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	68800	70600	72700	74600	76600	77900	80500	83300	85000	91600	98200	102600	107600	110200	112300	115600	119500	121100	123800	127700
Avg. Daily VMT/1000	1573	1669	1714	1836	1998	2112	2078	2268	2437	2532	2583	2623	2684	2742	2797	2882	2902	2930	3013	3104

Table D-70

Merced County
Surface Area = 1980 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	144500	147800	153000	157200	162300	164900	168400	173500	177800	186300	192800	196400	200400	203600	203700	202400	206200	208300	211300	214400
Avg. Daily VMT/1000	2569	2552	2644	2713	3006	3197	3397	3665	3796	4845	4946	5074	5231	5391	5559	5706	5799	5913	6079	6439

Table D-71

San Joaquin County
Surface Area = 1420 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	371400	383800	396700	410100	428000	444900	460400	473300	483700	496300	507500	515900	520000	524500	531900	537700	545300	552300	563100	573600
Avg. Daily VMT/1000	6139	6387	6873	7474	8260	9104	9904	10686	11174	11466	11803	12109	12485	12881	13297	13641	13923	14264	14662	14940

Table D-72

Stanislaus County
Surface Area = 1510 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	281800	287500	295700	301300	308900	319800	332700	346100	362300	383800	397800	406400	414400	418500	422500	426300	433400	437900	447400	454600
Avg. Daily VMT/1000	3998	4142	4535	4686	5080	5512	5994	6467	6885	8468	8626	8841	9102	9321	9549	9772	9869	9998	10266	10549

Table D-73

Tulare County
Surface Area = 4840 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	262700	269100	276800	283200	290300	296500	302800	309500	314500	324800	334900	342500	348400	353100	359100	360500	364600	367200	371200	375100
Avg. Daily VMT/1000	4082	4147	4473	4591	5195	5421	5751	6082	6368	6705	6998	7179	7531	7715	7957	8229	8332	8436	8657	8903

Table D-74

South Central Coast Air Basin

Surface Area = 7780 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	1035400	1062400	1089400	1114500	1144300	1172600	1201500	1227800	1264700	1287200	1302100	1315700	1324100	1333600	1341100	1349300	1370300	1381400	1400900	1421300
Avg. Daily VMT/1000	15070	15868	17519	18830	20175	21680	23137	24375	25683	27444	27550	27788	27996	28041	28165	28437	28600	29562	30458	30887

Table D-75

San Luis Obispo County

Surface Area = 3180 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	165800	170300	175000	181100	188800	195400	202000	206400	215700	223400	226000	227900	230400	232100	233800	236700	240900	243300	246400	249900
Avg. Daily VMT/1000	2819	2970	3226	3533	3914	4168	4455	4792	5117	5275	5299	5521	5522	5448	5395	5496	5527	5694	5864	5974

Table D-76

Santa Barbara County

Surface Area = 2740 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	313800	321400	330900	337500	346700	353800	360000	363500	373800	380200	385400	388400	387500	389300	391300	391800	397200	398400	400900	406100
Avg. Daily VMT/1000	5275	5632	6004	6242	6736	7127	7519	7862	8310	9204	9154	9047	9069	8980	8927	8910	8921	9196	9477	9586

Table D-77

Ventura County

Surface Area = 1860 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	555800	570700	583500	595900	608800	623400	639500	657900	675200	683600	690700	699400	706200	712200	716000	720800	732200	739700	753600	765300
Avg. Daily VMT/1000	6976	7266	8289	9055	9525	10385	11163	11721	12256	12965	13097	13220	13405	13613	13843	14031	14152	14672	15117	15327

Table D-78

South Coast Air Basin
Surface Area = 6729 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	11083000	11320700	11555300	11753300	12002600	12310600	12605700	12869900	13169800	13477400	13692800	13882900	13955500	14001200	14025000	14085400	14249000	14399500	14639400	14880200
Avg. Daily VMT/1000	170713	176624	193196	221732	233013	243609	243304	256994	270369	280160	281438	283087	285789	288561	291175	293429	294409	303347	312096	314618

Table D-79

Los Angeles County
Surface Area = 2770 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	7716400	7867500	8014500	8127700	8263900	8436500	8580600	8681800	8799900	8921800	8993100	9071800	9070700	9070000	9040300	9027000	9093000	9150900	9274300	9411000
Avg. Daily VMT/1000	119618	123191	134244	153649	159067	163769	162352	169241	175883	179950	179547	179550	179995	180483	180699	180839	180301	184626	190014	190492

Table D-80

A portion of Los Angeles County lies within the Mojave Desert Air Basin.

Orange County
Surface Area = 770 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	2040800	2081100	2124400	2158100	2206200	2259200	2310100	2359100	2416100	2462100	2506800	2557600	2594000	2616900	2643300	2683100	2737500	2788300	2842400	2893100
Avg. Daily VMT/1000	30803	32468	35660	41484	44498	47547	47343	50061	52741	55770	56254	56716	57509	58290	59155	59909	60451	63110	64802	65359

Table D-81

Riverside County
Surface Area = 2049 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	552700	575700	599200	629300	663500	705000	753400	807600	870000	947800	998300	1029400	1052600	1069300	1088300	1107400	1131500	1154500	1191300	1221100
Avg. Daily VMT/1000	8904	9270	10418	11832	13306	14748	15819	18299	20807	22590	23315	24046	24909	25784	26709	27571	28227	29445	30327	31212

Table D-82

Portions of Riverside County lie within the Mojave Desert and Salton Sea Air Basins.

San Bernardino County
Surface Area = 1140 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	773100	796400	817200	838200	869000	909900	961600	1021400	1083800	1145700	1194600	1224100	1238200	1245000	1253100	1267900	1287000	1305800	1331400	1355000
Avg. Daily VMT/1000	11388	11695	12874	14767	16142	17545	17790	19393	20938	21850	22322	22775	23376	24004	24612	25110	25430	26166	26953	27555

Table D-83

A portion of San Bernardino County lies within the Mojave Desert Air Basin.

California

Surface Area = 157034 square miles

Parameter	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	24854000	25393800	25937500	26429300	27028800	27694400	28374300	29065800	29831600	30652305	31239200	31719290	31996910	32155040	32291000	32500680	32985250	33387810	33933940	34480430
Avg. Daily VMT/1000	416405	432094	466021	513412	546613	577839	597615	631593	661388	689784	696212	702121	712182	720610	730098	738153	742578	764813	786844	797276

Table D-84

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APPENDIX E

Lists of Figures and Tables for Chapters 1 through 5

List of Figures

Chapter 1: *Introduction*

Chapter 2: *Current Emissions and Air Quality -- Criteria Pollutants*

List of Figures (continued)

Chapter 3: ***Statewide Trends and Forecasts -- Criteria Pollutants***

List of Figures (continued)

List of Figures (continued)

List of Figures (continued)

List of Figures (continued)

Chapter 5: ***Toxic Air Contaminant Emissions, Air Quality, and Health Risk***

List of Tables

Chapter 1: *Introduction*

Chapter 2: *Current Emissions and Air Quality -- Criteria Pollutants*

List of Tables (continued)

List of Tables (continued)

Chapter 4: ***Air Basin Trends and Forecasts -- Criteria Pollutants***

List of Tables (continued)

List of Tables (continued)

List of Tables (continued)

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